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Benin: Towards Inclusive and Sustainable Rural Transformation

Country Study

A cooperation with the Centre de Partenariat et d'Expertise pour le Développement Durable (CePED)

Erik Engel, Daniela Richter, Jonas Schüring

In collaboration with Gabriele Beckmann and Anja Kühn

February 2017

HUMBOLDT-UNIVERSITÄT ZU BERLIN

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The **Centre for Rural Development (SLE)** is affiliated to the Albrecht Daniel Thaer Institute for Agricultural and Horticultural Sciences in the Faculty of Life Sciences at the Humboldt-Universität zu Berlin. Its work focuses on four strands: **international cooperation for sustainable development** as a post-master degree course, **training courses** for international specialists in the field of international cooperation, applied **research,** and **consultancy services** for universities and organizations.

The objective of the research project "**Towards a Socially Inclusive and Environmentally Sustainable Rural Transformation in Africa**" is to identify strategies, instruments and measures that will help to forge a more socially inclusive and environmentally sustained rural transformation in Sub-Saharan Africa. The project itself is a constitutive component of the ONE WORLD, NO HUNGER Special Initiative financed by the Federal Ministry for Economic Cooperation and Development (BMZ).

The **Centre de Partenariat et d'Expertise pour le Développement Durable** (CePED) is a non-profit social research centre based in Cotonou, Benin. Its objectives are to contribute to promoting sustainable development through applied research on economic development, environmental sustainability and social justice. It is placed under the supervision of the Ministry for Prospection, Development and Evaluation of Public Action. It has consolidated its key position in the landscape of applied scientific research in Benin during numerous South-South cooperation, the implementation of development projects as well as the collaboration in diverse external researches.

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Abstract

Despite vast research on rural development in Africa, little is known about the ongoing or future near structural transformation in rural areas. This paper analyses current trends and displays different scenarios of rural transformation in Benin until 2030. By applying a mix of qualitative research methods, it delivers practice-oriented results in order to define multi-level and multi-dimensional strategic recommendations towards a more socially inclusive and sustainable direction of change. Benin is characterised by partial rural transformation, albeit at a moderate pace. From a systemic point of view, professionalization of agriculture and processing via sustainable intensification can serve as a key to income generation and increase resilience of the local population. Support to financial services, the creation of non-farm employment and improved land use planning and governance are indispensable measures.

Key Words

Benin; structural change; rural transformation; rural development; social inclusion; environmental sustainability; small-scale farmers; migration; urbanisation; rural livelihoods; multi-local; agriculture; intensification; policy; access to finance

Summary

Despite extensive research on rural development in Sub-Saharan Africa, little is known about structural transformation[1] in rural areas on the continent. Benin was chosen as one of three case study countries[2] in order to identify and to analyse rural transformation processes and their main influencing forces aiming at defining strategies and measures to influence such processes towards social inclusiveness and environmental sustainability until 2030.[3]

The overall results of the empirical study show that rural transformation processes in Benin are sluggish, gradual and follow a very different trajectory than historical transformation processes in Europe or East Asia –they are neither characterized by increasing agricultural productivity and depopulation of rural areas, nor by an increasing share of industry for GDP or employment, nor by declining birth rates.

However, the processes observed indicate multidimensional structural changes affecting the livelihoods of rural people such as:

- a diversification of household income options via increasing multi-local livelihoods,
- the urbanization of secondary towns due to rural-urban migration and saturation of major cities,
- increasing importance of the service sector for both GDP and employment,
- a gradual professionalization of the agricultural sector despite overall low and decreasing agricultural productivity.

These changes tend to increase social exclusion, because the chances to benefit from them are not evenly distributed. They will also promote unsustainable use of natural resources as long as birth rates remain high while agricultural productivity remains low. The continued reliance on agriculture leads to an unsustainable utilization of natural resources – mainly due to overexploitation and non-adapted management of soils over increasingly large areas.

Details of the trend analysis

An analysis of trends in the rural context and their driving forces was carried out along the different dimensions of the livelihood framework: economic, political-institutional, social, and environmental. The analysis highlights that ongoing processes are characterized by both change and stagnation.

1 Rural transformation is understood as a long-term, multidimensional process of change affecting the basic livelihoods characteristics of people in rural regions, taking into account their interaction with societal and global dynamics (Rauch, Beckmann, Neubert, & Rettberg, 2016).

2 The other countries were Zambia and Ethiopia, selected to reflect the diversity of situations on the continent

3 The team conducted a scenario workshop with 27 participants from ministries, civil society, researchers, and the private sector. This workshop developed different scenarios of rural transformation in Benin until 2030. The results of the workshop were underpinned, strengthened and enhanced (USE) in a subsequent phase of 109 expert interviews and focus group discussions in two provinces – selected for their different agro-ecological and socio-economic conditions, and further validated and substantiated with literature studies.

Economic dimension

Benin's GDP growth rate of around 5% has been exceeding the Sub-Saharan African average since 2012, mainly driven by the service sector (expansion of the port of Cotonou) and increased agricultural production due to increased areas of agricultural lands. This has not resulted in a relevant reduction of poverty[4], or in improved employment opportunities, as is illustrated by continued high rates of under-employment (56% in 2014) and informal employment (94% in 2014). The formal industrial and manufacturing sectors remain weak, while the informal (service) economy is growing.

There is a weak trend towards a non-agricultural income diversification driven by the service sector. Its contribution to GDP has increased to over 50% (2014) and it has stabilized its position as main employer, employing 46% of the working population in 2014. However, agriculture remains strong: its GDP share has stagnated at nearly 36% since 2009; 42.7% of the working population continue to rely on the sector for occupation and income. The agricultural sector continues to be dominated by small-scale farmers: 50% cultivated less than 2 ha in 2013, and 80% less than 4 ha[5]: they produce 90% of the national agricultural output.

Despite its unbroken relevance for the national economy, agriculture remains below its potential. Productivity for crops is below the average in comparable countries. Agricultural total factor productivity[6] is still declining: between 1983 and 2008 it fell by 10%, mainly due to decreasing soil fertility, degenerated seeds, poor water management, pests, diseases, and insufficient plant protection. Increased weather variability driven by global climate change is further aggravating crop management challenges as growing conditions become less predictable.

In contrast to the European model (where increasing productivity was one of the main factors driving structural transformation), the decreasing productivity in Benin's agriculture pushes people out of crop production as it becomes increasingly difficult to make a living. Despite a lack of formal off-farm employment, labour migration is therefore increasing. The result is precarious underemployment in urban centres, mainly affecting younger people.

On the other hand, an improved road network and increasing market integration supports a slight diversification trend in the agro-food sector (primary production and processing) and offers new economic activities in small urban centres in rural areas, like Ndali in the province of Borgou. Financial services, especially credits, are increasingly available in rural areas, but they have high interest rates (between 15-25%), collaterals perceived as excessive by farmers, and loan cycles which do not correspond to crop cycles. Credits are therefore not adapted to the needs of agricultural producers. Other services like rural electrification and access to information and communications technology (ICT) have been improving over the past 15 years. Mobile phone subscrip-

4 Monetary poverty has stagnated since 2009 at around 35% and is disproportionately higher in rural areas, while asset-based poverty (e.g. houses, mobile phones, vehicles, etc.) decreased from 44% (2006) to 29% (2011).

5 Farm sizes differ by region. In the North and the centre, farms are generally bigger: in Borgou, 45% of farmers cultivate more than 4 ha, compared to less than 10% in Ouémé and Plateau.

6 Total factor productivity (TFP) is the ratio between total output (crop and livestock products) to total production inputs (land, labour, capital, and materials). A low TFP implies that less output is gained from a constant amount of resources used in the production process (IFPRI, 2015).

tions increased from 7.3 to 102% (2005 – 2014). However, rural electrification and internet access remain below the Sub-Saharan average.

The integration in regional markets offers considerable potential for the Beninese economy and the rural population, e.g. through value chain development for specific agricultural products such as palm oil or pineapple. Nigeria represents a huge and important market, and regional standards and tastes are comparable to Benin and less inhibitive than EU standards, for example. While the Nigerian market is already important for local producers and a relevant factor for economic dynamics, this potential is not yet fully exploited due to continuing insufficiency of infrastructure for commercialisation, sub-standard products, and harassments of traders.

Despite all limitations, the sum of trends described above contributes to a slowly increasing professionalization and commercialisation of agricultural production. They foster increasing rural-urban linkages with an improved road network and increasing multi-local livelihoods, facilitating the exchange of goods, money, people, and value systems. However, the poorer segments of the population are disadvantaged by these changes. They have less access to inputs and improved means for crop production, so that their productivity declines even faster and their options to commercialize are further inhibited. There are also strong regional disparities in local opportunities to diversify, professionalize and commercialize, as there are strong variations in infrastructure supply and energy access. The described processes are therefore not socially inclusive.

Political and institutional dimension

Governance in Benin is characterised by stark disparities between the formulation of well-designed policies, strategies and plans, and the extent of their implementation. The decentralisation process, agricultural policies and changes in land legislation serve as examples.

The ongoing decentralisation process contributes to more political participation and thus enables lower administrative levels and the population to take some control of rural development. A legal framework for decentralisation exists, responsibilities and tasks are partly devolved and municipalities are theoretically largely autonomous in their decision-making. However, financing still depends on the goodwill of the central government, and progress in decentralisation differs from sector to sector and between municipalities. Formally implemented participatory approaches lack functionality and human resources, while coordination between central government and local actors continues to be weak.

The national strategy for the agricultural sector is designed to promote professionalization and diversification in agriculture. However, as this is only partly implemented, the agricultural potential continues to be underexploited – which negatively affects rural livelihoods. Sustainable land management techniques are not comprehensively promoted or supported (e.g. soil conserving or enhancement techniques). Low and decreasing productivity coupled with the need to increase production leads to encroachment on land formerly not used for cultivation. The expansion of farmland decreases the availability of pastoral land for semi-nomadic groups (mainly Peulh) and further increases the risk of conflict between farmers and herders.

The expansion of agricultural lands, insufficient input supplies for overall agricultural production, and the strong focus on cotton for export lead to soil mining, land degradation, and exacerbate

deforestation. The overall low and decreasing levels of productivity are not addressed by national policies; research and development (R&D) and extension services do not have the capacities and means to adequately support farmers and increase the outreach of input supplies. For the time being, agricultural policy on the ground therefore contributes to the deterioration of natural resources and the fragilization of the environment. As it fails to address environmentally sustainable productivity and diversification objectives, it does not respond to the income needs of a growing rural population.

Issues around land tenure and land use are increasing: Population growth and migration lead to urban sprawl and increasing land pressure (mainly in the already densely populated south). Peri-urban regions develop around major urban centres, e.g. Cotonou, Porto Novo, Parakou,. Agricultural land is becoming more valuable as it becomes scarcer and some farmers, often the poor, sell their land to investors. They then find themselves without means to gain a living and are forced to move to urban centres, often ending up in informal and insecure underemployment, e.g. Zemidjan (mototaxi) drivers, or hawkers in the streets. Only a few small-scale farmers register their land because current administrative procedures are costly and demand literacy and education.

Improved regulation for better land security is so far not fully implemented. The rolling out of the new land code (adopted in 2013) offers opportunities for a more inclusive land tenure system, as it previews various safeguards against land speculation and for the protection of small-scale agricultural producers. Its implementation and impacts on the ground will need to be monitored closely by government and independent observers.

Social dimension

Demographic dynamics are marked by a continuously strong population growth. Migration patterns are varied: besides rural-urban migration, urban-urban migration also takes place. Cotonou in the department of Littoral is characterised by falling growth rates, while neighbouring cities Abomey-Calavi and Ouidah are experiencing accelerated urbanisation. One side effect is the intensification of rural-urban relationships and a slow increase of urban infrastructure in formerly rural areas, including better access to electricity, health and education services. Rural-rural migration is also a phenomenon. Labourers from areas with less fertile soils and increasing weather variability (e.g. Atacora, Alibori) are moving temporarily or permanently to regions that are more favourable – which in consequence witness increasing pressure on their resources.

Benin shows remarkable improvements in health infrastructure and preventive health care due to efforts by government and the international community. Even in rural areas, access to safe drinking water has increased from 49% to 72% in the past 15 years, and maternal and child health have improved significantly. However, access is not inclusive: the poor transport infrastructure, persisting rural monetary poverty and socio-cultural barriers like the reliance on traditional healers and medicines all limit the use of existing health infrastructure and services in rural areas. Improvements thus remain below expectations. The same holds true in education: enrolment and completion rates in primary education improved in recent years. However, school materials are often too costly, despite the declared free education; teachers are often not paid and thus absent from school; the reputation of schools and teachers remains poor. In consequence, drop-out

rates are high and attendance in secondary education continues to lag behind, especially for girls.[7]

Despite government efforts over recent decades, rural areas in Benin face significant structural disadvantages. Access to good social services continues to be poor due to the inadequate infrastructure and difficulties in finding qualified staff willing to work in remote areas –. Such disadvantages generally restrict the possibilities for socially inclusive rural transformation processes and will most likely continue to do so in the near future.

Environmental dimension

Land resources in Benin continue to be degraded for a number of reasons: the over-exploitation of soils due to missing application of fertilizers and soil conserving techniques; increasingly smaller plots (when uncultivated land is not available, the existing land is divided up among the next generation) with decreasing rotation or fallow periods in the densely populated south; tenure insecurity discouraging long-term investments in soil conservation and protection; and a lack of capacities and/or awareness for sustainable management. The degradation drives land use changes from pastures and forests land to agricultural land to maintain crop production levels.

The expansion of crop land into pastoral land reduces the availability of pastures. This process pushes the increasing degradation of the remaining grazing land due to overstocking. Simultaneously, it increases the risk of conflict, as the encroachment into former pastoralist land is often done without knowledge of respect for pastoralist needs (e.g. corridors to water courses or to grazing areas).

Expansion of agricultural land is also the main driver for the ongoing deforestation. This process is exacerbated by the unabated use of charcoal as fuel. Government measures to curb unsustainable exploitation of fuelwood (reforestation programmes, control of wood transport), programmes to replace wood or charcoal as main cooking fuels or to optimize its consumption or production (improved stoves, efficient kilns) have so far not had any appreciable impact. Deforestation is accompanied by a loss of biodiversity and reduced water and soil retention capacities, thus increasing the risk of erosion and flooding.

Increasing weather variability is negatively affecting rain-fed crop production. Rainfalls in the South are shorter and less intense, while in the North they occur later and with more intensity. Generally, rainfalls are increasingly less bound to seasonality. Precipitation decreased 3.5% per decade from 1960 to 2006, strongest in the south and during the wet season. While no trend is visible concerning the ground and surface water availability, a deterioration of water quality is noted.

Ecological degradation exacerbated by climate variability negatively impacts the livelihoods of the population, particularly in the poorest regions of the country (Atacora, Alibori). The changing environmental conditions degrade the means of production (decline in soil fertility, increased erosion, less predictable availability of water) and thus decrease economic opportunities. One

7 In 2013, 83% of enrolled boys completed primary school, vs. 68% of girls; enrolment in secondary school: 55% of boys, 35% of girls.

common coping strategy is migration, either to urban areas – with the mentioned precarious job opportunities – or to less degraded rural regions. Here, the resulting increased population density and the inappropriate cultivation techniques often practised by migrants aggravate the pressure on natural resources and infrastructure at these sites.

Taken together, the current trends force a growing number of people to migrate. Households increasingly adopt **flexible multi-local livelihood systems** to make optimum use of the limited, often precarious and seasonally fluctuating income opportunities. While ever more people start looking for non-farm income (in cities and increasingly in secondary towns), crop production for subsistence and where possible market production is upheld and diversified. These processes are the sum of individual coping strategies but they are not managed comprehensively, nor do policies (e.g. urban planning) adapt to them. They are not environmentally sustainable (because they put excessive pressure on natural resources), nor are they socially inclusive (because opportunities are not evenly distributed). This fosters a growing divide between the favoured and disfavoured segments of the population.

The workshop participants saw the continuation of trends described above as the most **realistic scenario for Benin in 2030**. They labelled it "**Wahala – catastrophic**".

In the *wahala* scenario, bad governance persists and results in increasingly unequal access to resources, benefits, and opportunities. General economic growth brings some off-farm employment opportunities, but these are not sufficient to absorb the job-seeking youth. Agriculture is only slowly diversifying and becoming more market oriented, while productivity is declining further. This does not make it possible for the majority of small-scale farmers to increase their resilience. Natural resources continue to deteriorate, fostering land conflicts, a situation accelerated by demographic dynamics. The sum of these processes accelerates rural-urban migration and forces the adoption of multi-local livelihoods based on various precarious income opportunities. Expected improvements in communications and the road network will facilitate mobility and support the multi-local livelihoods. Improvements in social infrastructure are continuing, but the rural-urban gap in access and quality widens.

The ongoing processes are accompanied by increasing risks of social and political tension. Overall, improvements are insufficient to keep pace with population growth. Persisting bad governance, natural resource deterioration and low agricultural productivity are main drivers of this catastrophic scenario.

An **optimistic scenario for 2030** labelled "**Alafia – happiness**" describes a best case. It is only achievable if adequate action towards social inclusion and sustainability is taken (see recommendations below). In that scenario, small-scale agriculture is professionalized (i.e. a sustainable increase of productivity, embedded in value chains) and provides better employment opportunities to a relevant part of the population in the agro-food sector. Income options in rural areas become more attractive and urbanization tendencies slow down. The slower pace of urbanisation and more consequent devolution of power to decentralized levels allow for better spatial planning and adequate infrastructure development.

Alafia is achieved thanks to the implementation of the new agricultural strategy: this facilitates improved access to agricultural inputs and advisory services that help increase the productivity of

small-scale farmers and encourage the adoption of agricultural practices that enhance soil fertility (soil moisture conservation, soil organic matter enhancement etc.). The income of the rural population increases with higher productivity, which facilitates access to microfinance. A new system securing land tenure encourages investments to conserve productivity and stabilise livelihoods. This sustainable intensification along with new sources of revenue from the development of value chains (processing and regional commercialisation) reduces the direct pressure on natural resources and thus contributes to more sustainability within the ongoing transformation processes.

These improved rural livelihood options reduce rural-urban migration to major urban centres and encourage the growth of decentralized economic dynamics in secondary centres. Reduced migration and on-going decentralisation make municipal planning easier so that urbanisation happens within designed land-use plans. New developing small urban centres with infrastructure and markets help reduce the disparities between urban and rural regions in terms of non-farm income opportunities and access to commodities and services. Better services and more commodities bring along better education and, in the long run, more empowerment, thus increasing the capacities of the population to demand good governance to sustain the overall positive trends.

Recommendations

As rural transformation is a long term and complex process, tackling it means long-term engagement, addressing not only agriculture but also the whole economy, including the institutional framework. Small-scale farmers have to be targeted by proposed measures, as they will remain the main economic actors in rural Benin for years to come. It is vital to adapt any measure to the different local contexts before implementation.

In order to shape rural transformation in a more sustainable and socially inclusive way, different intervention areas for development partners have to go hand in hand and should directly contribute to one or more of the following areas:

(1) A more sustainable use of natural resources with a focus on environmentally sustainable intensification of agricultural production.
(2) An increased number of off-farm opportunities for rural households aiming at increasing options to raise and diversify their income sources.
(3) Better access to public services for small-scale farmers and vulnerable groups, including access to infrastructure, information, and markets. Better information and access will contribute increased capacities of rural households to demand policy implementation.
(4) An increased degree of organization of rural farm households in an inclusive way in order to overcome market failures in rural areas. Farmers' organizations promote capacities to participate in policy-making.
(5) Secured access to land in order to sustain livelihoods in rural areas and make rural households eligible for credits.
(6) The most critical factors for rural transformation identified by the scenario-building workshop were the sustainable management of natural resources, increased agricultural productivity, and access to financial services. Accordingly, they were chosen as the most promising entry points for concrete recommendations to orient the processes towards more inclusiveness and sustainability.

- **Sustainable increase of agricultural productivity** is the central lever to influence rural transformation in Benin. Many factors influence productivity, such as soil fertility and water, access to agricultural inputs, access to financial services, and dissemination of results from research and development. **Environmental intensification** can sustainably overcome soil fertility issues. It must be based on a broad strategy addressing different issues (e.g. soil nutrients, soil organic matter, ploughing or non-ploughing, depending on the specific soil and topographic conditions, as well as water retention capacities, erosion control, etc.) and levels (farm, extension services, input suppliers, policy makers) and should be implemented in cooperation with various partners – e.g. by pursuing a value chain approach with particular attention to disadvantaged groups. Agricultural productivity and sustainable natural resource management are closely linked (cf. 5.2).

- **Sustainable management of natural resources** is the other most important realm of intervention on farm and regional level. Efforts in this area are context-specific and should be adaptive to the state of natural resources. They require a multi-level approach. To be sustainable, all resources and their interdependencies have to be considered: soil and pasture, water, forest as well as (agro)biodiversity. Above all, the measures should be adapted to the specific natural landscape and its climatic and resource conditions. To ensure the sustainability of interventions, the local communities must be included in decision making processes and management. This fosters ownership of the resources and supports accountability for sustainable management (cf. 5.1).

- **Access to services in rural areas** – including access for the poor – is essential to enable the implementation of sustainable and socially inclusive practices in the management of natural resources and agriculture. Prerequisites for the realization of agricultural and other income generating activities are: Access to agricultural inputs (seeds, organic fertilizers and manure; where necessary mineral fertilizer and pesticides in combination with training); access to information and knowledge (e.g. about comprehensive pest management strategies, soil fertility enhancement measures, crop rotation, composting etc.); access to social services (education, health care); and access to **credit and financial services** . Decentralized financial services andappropriate financial products need to be available to farmers and innovators (for crop cultivation, agro-food processing). Expansion of the financial sector has to go hand in hand with campaigns for financial literacy and business management to prevent indebtedness. A strong control of the financial sector is compulsory (e.g. ethical standards) to reduce the risk of uncritical recruitment of customers. Besides these services, access to land and securing of land titles is of the utmost importance to foster ownership (cf. 5.3).

- In addition to the three main factors identified, we consider **accompanying measures in the non-farm sectors** as crucial for a better future (cf. 5.4.1). Off-farm income opportunities have to be created: firstly to decrease the dependency on agriculture and thus lower vulnerability to unforeseen climate-induced shocks, and secondly to create possibilities for the growing population and to provide options for diversification strategies beyond the agricultural sector. Finally, poverty is one of the main reasons for resource overexploitation – without unlocking new income sources, (unsustainable) exploitation of natural resources will serve as a fallback strategy, especially for poor rural households.

- **Better governance on all levels of intervention** is the key to the success of any intervention, as governance failures are the central obstacle to implementation of plans and programmes which overall seem well elaborated and coherent. Continued policy dialogue, capacity development for the different levels of administration and support in process monitoring to improve the efficiency of well-intended government programmes as well as strengthening of the role of civil society as advocates of the population need to accompany the specific recommendations.

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Abbreviations

ABSSA	Agence Béninoise pour la Sécurité Sanitaire des Aliments
AIC	Association interprofessionnelle du coton
ANCB	Association Nationale des communes du Bénin
ANDF	Agence Nationale du Domaine et du Foncier
BMZ	German Federal Ministry for Economic Cooperation and Development
CARDER	Centre d'action pour le développement rural
CePED	Centre de Partenariat de d'Expertise pour le Développement Durable
CFA	Franc de la Communauté Financière d'Afrique
CLCAM	Caisses Locales de Crédit Agricole Mutuel
FADeC	Fonds d'Appui au Développement des Communes
FDI	Foreign Direct Investment
FECECAM	Faitières des Caisses d'Epargnes et de Crédit Agricole Mutuel
FNDA	Fonds National de Développement Agricole
FUPRO	Fédération des Unions de Producteurs du Bénin
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IHDI	Human Development Index
INRAB	Institut National des Recherches Agricoles du Benin
IPCC	International Panel on Climate Change
MDG	Millenium Development Goals
NAPA	National Adaptation Program of Action
NICI	National Information and Communication Infrastructure
NRM	Natural Resource Management
NTFP	Non Timber Forest Products
PADME	Association pour la Promotion et l'Appui aux Développement des Micros-Enterprises
PFR	Plan Foncier Rural (Rural Landholding Plan)
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Paper
PSRSA	National Agricultural Strategy
PTF	Financial Service Provider
R&D	Research & Development

SCPR3	Growth and Poverty Reduction Strategy (Stratégie de Croissance pour la Réduction de la Pauvreté)
SEWOH	Special Initiative "One World, No Hunger"
SFD	Financial Service Providers
SLE	Seminar für Ländliche Entwicklung (Centre for Rural Development)
SME	Small and Medium Enterprises
SONAPRA	Société Nationale pour la Promotion Agricole
SPANB	National Strategy and Action Plan on Biodiversity
SSA	Sub Sahara Africa
UNCBD	The United Nations Convention on Biological Diversity
UNCCD	The United Nations Convention to Combat Desertification
UPC	Municipal Producers Union
USE	Underpin, Sharpen and Enhance (methodological approach)
VC	Value Chain

1 Introduction to the research project

1.1 Context of the research

This study is part of a larger research project implemented by the Centre for Rural Development (*Seminar für Ländliche Entwicklung* / SLE), Humboldt University Berlin named 'rural transformation in Sub-Saharan-Africa'. It is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of its special initiative "One World, No Hunger" (SEWOH) launched in 2014. Through this initiative, the BMZ intends to make a significant contribution to eradicate global hunger and malnutrition.

The main objectives of the research project are:

1. The analysis of past and current trends of rural change and
2. The identification of different scenarios of rural transformation until 2030
3. Developing context-specific strategic recommendations for suitable strategies and instruments that contribute to a socially inclusive and environmentally sustainable rural transformation.

With three empirical country studies (Ethiopia, Zambia, Benin) the research project directly contributes to one of the fields of action of the SEWOH initiative entitled 'structural transformation in rural areas'. The country studies therefore follow a strong interest to deliver practice-oriented research results. Applying a comparable qualitative methodological approach, all country studies worked on the same research questions dealing with major trends and future scenarios of rural transformation. The empirical country studies were supplemented by two desk-studies which provided the conceptual (Rauch, Beckmann, Neubert, & Rettberg, 2016) and methodological foundation (Berg, Beckmann, & Schelchen, 2016).

Rural areas in Sub-Saharan Africa are changing, yet there are strong indications that these changes do not follow the historical patterns of today's industrialized or emerging countries consisting of a shift towards industry and services as dominant economic sectors accompanied by urbanization, an industrialization of the agricultural sector and massive changes in the social texture. Instead, we find only a minimal transition from rural-agricultural to urban-industrial societies, while small scale farmer structures of society have survived even though there are social and spatial distinctions (Rauch et al., 2016). The present study contributes to a better understanding of transformation processes in order to move towards a socially inclusive and environmentally sustainable rural transformation.

1.2 Definition and use of terms of rural transformation

> "*Rural transformation is a long-term, multidimensional process of change affecting the basic livelihoods characteristics of people in rural regions, taking into account their interaction with societal and global dynamics*" (ibid.).[8]

Rural transformation is influenced by a broad range of factors on various levels including, amongst others, market and ecosystem dynamics, national politics, and local capacity for action. These factors interact and play out at various levels, for example linking global dynamics with local household decisions. Thus, rural transformation has to be understood as the interplay of structural framework conditions and the agency of social actors. Not all of the current changes necessarily contribute to transformation, because they may lack the amplitude, the long-term character, or the multi-dimensionality to severely impact the way societies are organized and interact. However, the combination of various trends may constitute a structural transformation due to their interlinkages and the various feedback mechanisms. The main features of the ongoing trends thus need to be evaluated in order to assess the degree to which they constitute part of a long-term transformation process.

Rural transformation is usually associated with changes in the distribution of economic, environmental, socio-cultural and political-institutional resources. These processes should therefore be assessed not only on the basis of the overall economic effects on welfare and growth, but also in terms of their consequences for groups that are vulnerable to or threatened by poverty. The social consequences of observed trends, especially for vulnerable groups, are assessed by analysing related processes of inclusion or exclusion. Social inclusion refers to the capabilities and structural conditions of a person or a social group to participate in a society. This concept focuses on social relations which are regulated through institutions, rules, and regimes. Key aspects of social relations which determine inclusion in or exclusion from certain social, economic, and political spheres are participation, access and entitlements to various resources. Different degrees of exclusion/inclusion may affect groups in some areas but not in others. The effects cannot be prevented by the actors themselves. The attention is directed less to situations and more to processes, i.e. how inclusive/ exclusive are the effects of rural transformation over time (ibid.). For an operationalisation of inclusion and exclusion see Annex.

Many of the current processes in rural areas contribute to changed patterns of settlement and land use thus exerting varying pressure on natural resources, i.e. water, soil, forest, ecosystems, and biodiversity. Environmental sustainability is interpreted according to the definition of sustainable development (SD) of the World Commission on Environment and Development (1986): a sustainable use of natural resources refers to use patterns which meet basic human needs of current generations without destroying or degrading the natural environment so that resource needs of future generations can be met More sustainable management on the local level also has to consider climate variability impacts. As such, sustainable development is not only a technical challenge but also a political question as it is subject to decisions based on partly contested perceptions concerning the root causes for the degradation of natural resources and the respective

8 An introduction to the concept of rural transformation and a general analysis of transformation processes in Sub-Saharan Africa is discussed in detail in Rauch et al., 2016.

measures to be taken (Rauch et al., 2016, p. 63). For criteria for a sustainable resource use system, see Annex.

1.3 Objectives and research questions

The following overarching research questions were developed for the country studies:

- Which trends characterize past and present processes of changes in rural areas and what are the main influencing factors and impacts?

This question aims at the identification of major trends over the past 30 years. It is assumed that an historical understanding of past trends (economic, institutional, political, environmental, social) is an essential foundation for the development of scenarios until 2030. This trend analysis includes the identification of influencing factors of these changes and of the multi-dimensional impacts.

- To what extent can current developments and trends be considered as structurally transformative, socially inclusive, and environmentally sustainable?

This question aims at an assessment of past and ongoing trends regarding their environmental sustainability, social inclusiveness, and transformative character. It is assumed that: a) the majority of current trends in rural areas are neither inclusive nor sustainable and b) only few trends contribute to a fundamental multi-dimensional transformation of the society.

- What is the currently most probable scenario for future processes of rural transformation until 2030?

This question aims at identifying major influencing factors which will have a strong transformative impact on rural socio-ecological systems and livelihoods in the coming 15 years. This scenario will be developed based on common perceptions of local stakeholders concerning the probability that current observable trends will continue with a high degree of certainty.

- What is an optimistic and realistic scenario until 2030? Which main intervention areas have a medium- and long-term strategic orientation towards inclusivity and sustainability?

Finally, a normative scenario will be analysed which is directed towards inclusivity and sustainability. Assuming that different stakeholders share this normative orientation, what measures are necessary to move into that direction? Based on this, context-specific strategies on various scales will be developed, indicating which interventions could support a strategic reorientation.

1.4 Methodology

In order to arrive at innovative practical strategic recommendations, the study teams followed a comprehensive research approach. A scenario building workshop resulted in the identification of the major influencing factors for rural transformation, their mutual interdependencies as well as relevant current and future processes (Berg et al., 2016).

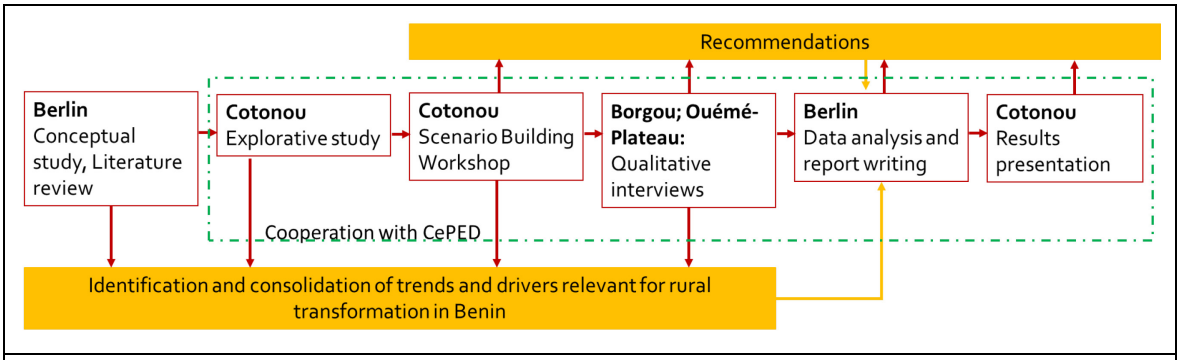

Figure 1: Methodological approach

Source: own elaboration

The empirical part was implemented in cooperation with the Centre de Partenariat et d'Expertise pour le Développement Durable (CePED) seated in Cotonou. This fruitful cooperation ensures that results of the study will not be limited to recommendations for the German ministry BMZ, but shall be promoted by CePED and sustained with national agencies and government institutions. The know-how of CePED in conducting research, in establishing and organizing cooperation with northern and southern partners, and particularly the experience in implementing projects for sustainable development in different parts of the country, greatly enriched the research by providing a mix of inside information and analysis blended with outsiders' perception analysis.

Scenarios relate to multiple plausible futures: unlike forecasts based on trend extrapolation, they do not attempt to predict what will happen but tell what could happen within a certain probability space over time (ibid., p. 1).

The scenarios address a time horizon of 15 years (till 2030) and are the results of a participatory five-day **scenario building workshop** (cf. 2.2. for further details) that consisted of the following steps:

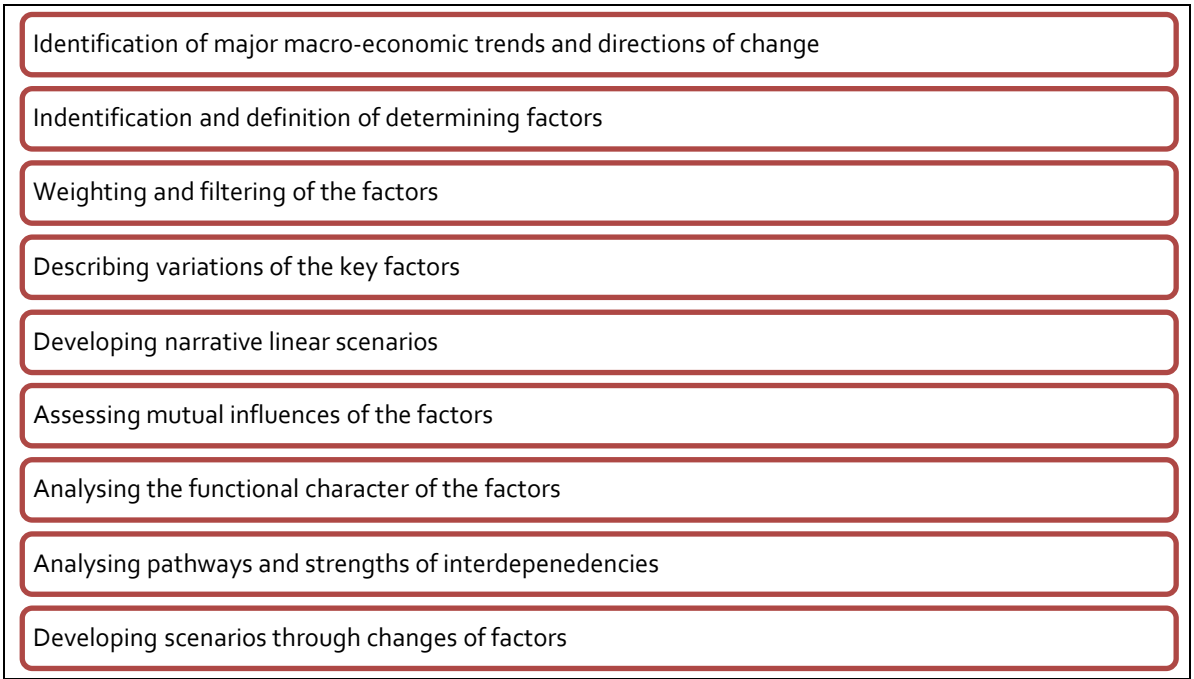

Figure 2: Procedure of the scenario building workshop

Source: own elaboration

In order to **underpin, sharpen and enhance (USE)** the workshop results, qualitative interviews and focus group discussions were carried out. According to the multi-level approach, data obtained at a national level was further detailed and validated at regional level in two selected provinces (cf. chapter 2). Interview partners were selected to represent the regional/departmental level as well as the local/municipal level and were identified on the ground and as recommended by contact persons. For the transition from the workshop to the USE phase, the research team reviewed the main influencing factors for rural transformation as identified in the workshop as well as complementary information collected through literature analysis. The identified main trends, as well as knowledge gaps were transferred into guiding questions for semi-structured interviews or focus group discussions and complemented by a set of research questions derived from the concept paper on rural transformation.

Influencing factors from the scenario workshop provided the analytical starting point for the trend discussion in the country studies. Primary data was enriched, triangulated and complemented with further information given by individual interview partners or secondary literature. The main results and findings have been discussed and validated in a sequence of presentations in the respective countries involving ministries and donors as well as the participants of the scenario workshop.

The research team consisted of 4 permanent SLE team members. During field visits, they were accompanied by local contact persons who provided access to farmers for individual or group interviews and translation services where necessary. Remaining interviews were conducted in English or French.

2 Introduction to the country study

2.1 Country background

Benin serves as one sample country, representing a small West African country with access to the sea and a humid tropical climate in the south and semi-arid Sahelian climate in the north.

Economically, the country serves as a hub for imported goods for landlocked countries in the north and northeast and as an entry point re-exporting to more protective countries like Nigeria (Golub, 2012, p. 1). Agriculture remains the second economic pillar, dominated mainly by small scale farmers and a low degree of diversification and professionalization (cf. 3.1). The presidential democracy of Benin, with recurrent elections and a maximum of two consecutive terms for decision makers, is characterized by stability and open political debates, but the country suffers from weak law enforcement (3.2). Despite economic growth over recent decades (3.1), Benin continues to rank among the 25 lowest countries in the human development index (rank 166 of 188 countries in 2015). The distribution of benefits from achievements is highly unequal: the inequality-adjusted Human Development Index (IHDI) is higher than the Sub-Saharan average (37.1: Benin; 33.1: SSA)(UNDP, 2015)[9].

Rural areas in Benin are facing massive environmental and socio-economic challenges which threaten the livelihoods of small scale farmers and pastoralists. The increasing pressure on national resources due to the high population growth, a lack of awareness and above all, poverty, in combination with insecure land tenure lead to resource scarcity and conflicts (3.1.). Low productivity, a lack of inputs and markets, the absence of rural non-farm income opportunities (cf. 3.3) and of services like health care, education, road infrastructure and energy, combine to trigger migration (3.2/0) which in turn leads to uncontrolled urbanization with precarious employment.

9 The IHDI combines a country's average achievements in health, education, and income with how those achievements are distributed among country's population by "discounting" each dimension's average value according to its level of inequality (UNDP, 2015).

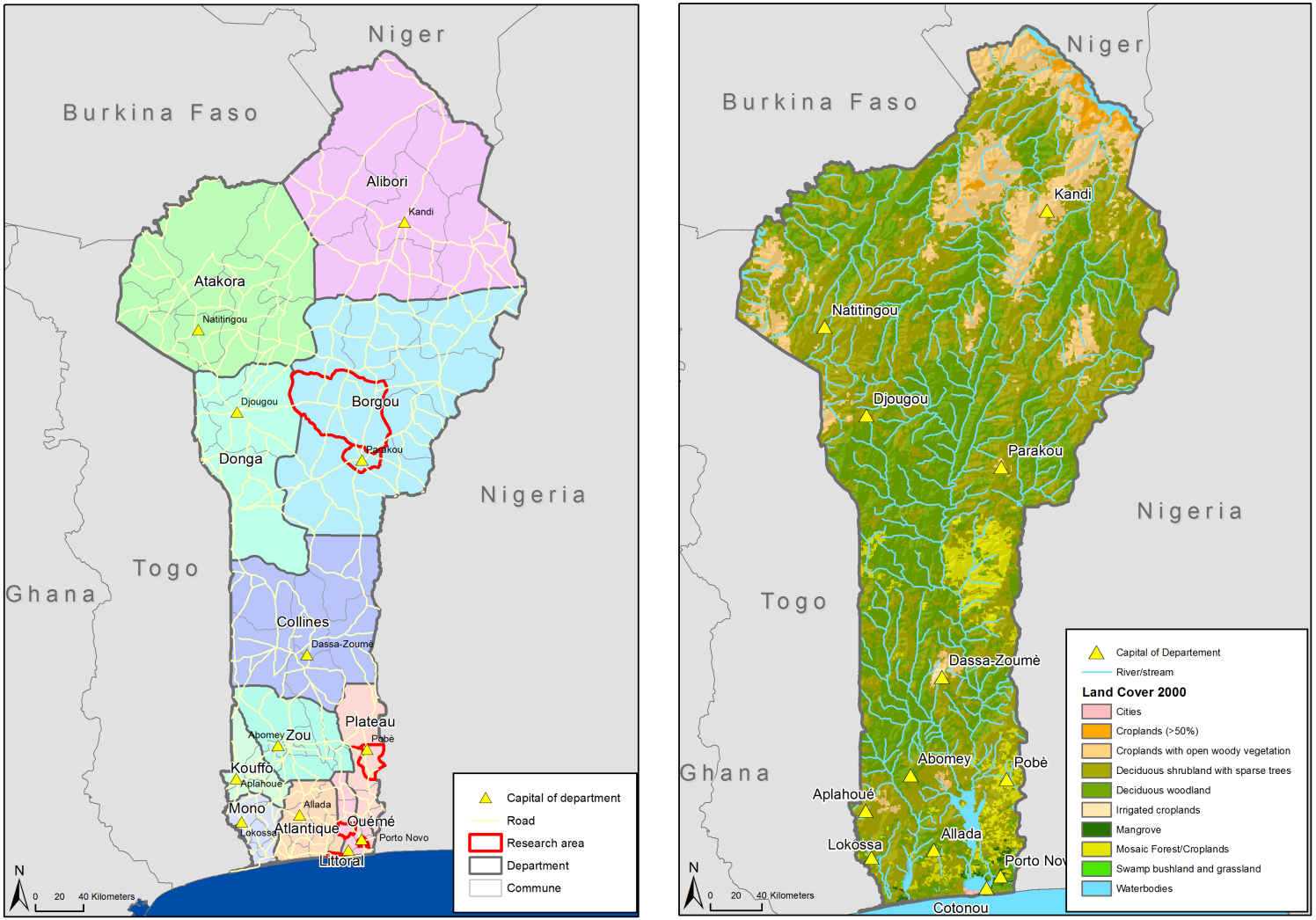

Figure 3: Map of Benin

Source: elaborated by Wolfram Lange (SLE), according to http://forobs.jrc.ec.europa.eu/products/glc2000/data_access.php and http://www.diva-gis.org/

Country fact sheet Benin

Area:	112,622 km²;
Terrain:	mostly flat to undulating plain; some low mountains
Climate:	tropical; hot, humid in south, semiarid in north
Capital:	Porto Novo (official capital); Cotonou (seat of government)
Government:	presidential democracy; elections every 5 years
Administrative divisions:	12 departments
Population:	10,448,647 Growth rate (2015 est.): 2.78% Urban pop.: 44% (cf. 3.4.1)
Language:	French (official); Fon and Yoruba (mostly in south)
Religion:	Catholic 27.1% ; Muslim 24.4% ; Vodoun 17.3% ; Protestant 10.4% ; others
Age structure:	0-14: 43% ; 15-24: 20% ; 25-54: 30% ; 55 and over: 6.3%
GDP:	per capita (PPP) (2015 est.): US $ 2,100; by sector: service 50.2% ; agriculture 36.3% ; industry 13.5% (cf. 3.2.2) GDP growth (2015): 5,2; (Rank 39 of 225)
Gini index:	Distribution of family income: 36.5 (2003) ; 85th in the world
HDI (2014):	Index 0.48; rank 166 (behind Rwanda, Haiti, Uganda; before Sudan, Djibouti, South Sudan)
Food Security:	Food Security: prevalence of undernourishment in the population: 8% Global Food Security Index: Rank 88 of 113

Source: CIA (n.d.); The Economist Intelligence Unit (2016); World Bank (2016)

2.2 Key results of the scenario workshop

The scenario-building workshop was carried out according to Berg et al. 2016. It counted 27 Beninese participants, representing a variety of sectors (cf. Table 1).

Table 1: Overview of sectors represented by workshop participants

Ministry	**Research**
▪ DASSN - Direction des Affaires Sociales et de la Solidarité Nationale ▪ DPFG - Direction de la Promotion de la Femme et du Genre ▪ INRAB - Institut National des Recherches Agricoles du Bénin ▪ INSAE - Institut National de la statistique et d'analyse économique du Bénin ▪ MAEP - Ministre de l'Agriculture, de l'Elevage et de la Pêche ▪ MDGLAAT - Ministère de la Décentralisation ▪ DGFRN - Direction Générale des Forêts et des Ressources Naturelles ▪ PNE - Partenariat National de l'Eau du Bénin ▪ SONAPRA - Société nationale pour la promotion agricole	▪ CePED - Centre de Partenariat et d'Expertise pour le Développement Durable ▪ CBRST - Centre Béninois de la Recherche Scientifique et Technique; ▪ CEFORP/ UAC - Centre de Formation et de Recherche en matière de ▪ Population ▪ CBRST/MESRS - Centre Béninois de la Recherche Scientifique et Technique ▪ CIFRED/UAC - Centre Inter-Facultaire de Formation et de Recherche en Environnement pour le Développement durable ▪ FSA/UAC - Faculté des sciences agronomiques ▪ WASCAL - West African Science Service Center on Climate Change and ▪ Adapted Land Use
Private sector	**Civil Society**
▪ CCIB - Chambre de commerce industrie du Bénin ▪ Chambre Nationale d'agriculture Benin ▪ CNP Benin - Conseil National du patronat du Benin ▪ FUPRO - Fédération des Unions des Producteurs du Benin	▪ CREDI-ONG - Centre Régional de Recherche et d'Education pour un Développement Intégré ▪ ECO Bénin ▪ IDID ONG - Initiatives pour un développement Intégré Durable ▪ GERME - Groupe d'appui, d'Encadrement et de Recherche en Milieu rural ▪ PASCIB - Plateforme des Acteurs de la Société Civile du Benin ▪ PNOPPA - Plateforme nationale des organisations paysannes et de producteurs agricoles

Source: own elaboration

Participants have listed 32 factors of which they identified 10 as being the most influential ones for rural transformation as shown in Table 2.

In the influence matrix (Table 24) mutual interdependencies of these ten factors are assessed and assigned scores (qualified in terms of "0=having no influence at all" to "2 = having a strong influence"). The respective columns and rows for each factor show the degree of sensitivity (passive sum) each factor has towards all other factors and the cumulative degree of influence of each factor (active sum) in the system.

Multiplying active and passive sums discloses the overall influence the factor has within the system:

- **Active factors** have much influence but are hardly influenced in the system. If they are changed in a desired way, they will exert a lot of positive effects on rural transformation, with little repercussions on the factor itself; however, if their influence is negative we need to develop strategies to reduce their influence.
- **Passive factors** are highly influenced by the other factors without having much influence. If they are to become more stable and autonomous within the system, other factors which have a strong influence on them need to be influenced.
- **Inert factors** are hardly influenced by the other factors and do not have much influence in the system; they can help to calm down or buffer the system; we may ignore them but should be aware that they can also tip over.

Table 2: Scenario Building Workshop results: Influence Matrix

	Access to Credit	Govern-ance	Natural Resource Mgmt	R&D	Demographic Dynamics	Agric. Policy	Agric. Productivity	Access to Markets	Land Tenure Security	Access to Energy	Active Sum
Access to Credit		0	1	0	1	0	2	2	1	2	9
Governance	2		2	2	1	2	2	1	2	2	16
Natural Re-source Man-agement	0	0		1	2	1	1	0	1	2	8
Research & Development	0	0	1		0	1	2	1	0	1	6
Demographic Dynamics	1	0	2	0		1	1	1	2	2	10
Agricultural Policy	2	0	2	2	1		2	2	2	1	14
Agricultural Productivity	2	0	2	1	1	1		2	2	1	12
Access to Markets	2	0	2	0	1	0	2		1	0	8
Land Tenure Security	2	0	2	0	1	0	1	0		0	6
Access to Energy	0	0	1	0	1	0	2	0	0		4
Passive Sum	11	0	15	6	9	6	15	9	11	11	
Active Sum x Passive Sum	99	0	120	36	90	84	180	72	66	44	

Source: own elaboration

Critical factors have much influence and are highly influenced, hence they move the system most; when changing them, they will exert a lot of effects on rural transformation but we need to carefully assess the feedback loops. From the five factors with the highest active sum, we have chosen the **three factors with the highest multiplied scores to serve as entry points for the recommendations** (cf. Figure 4).

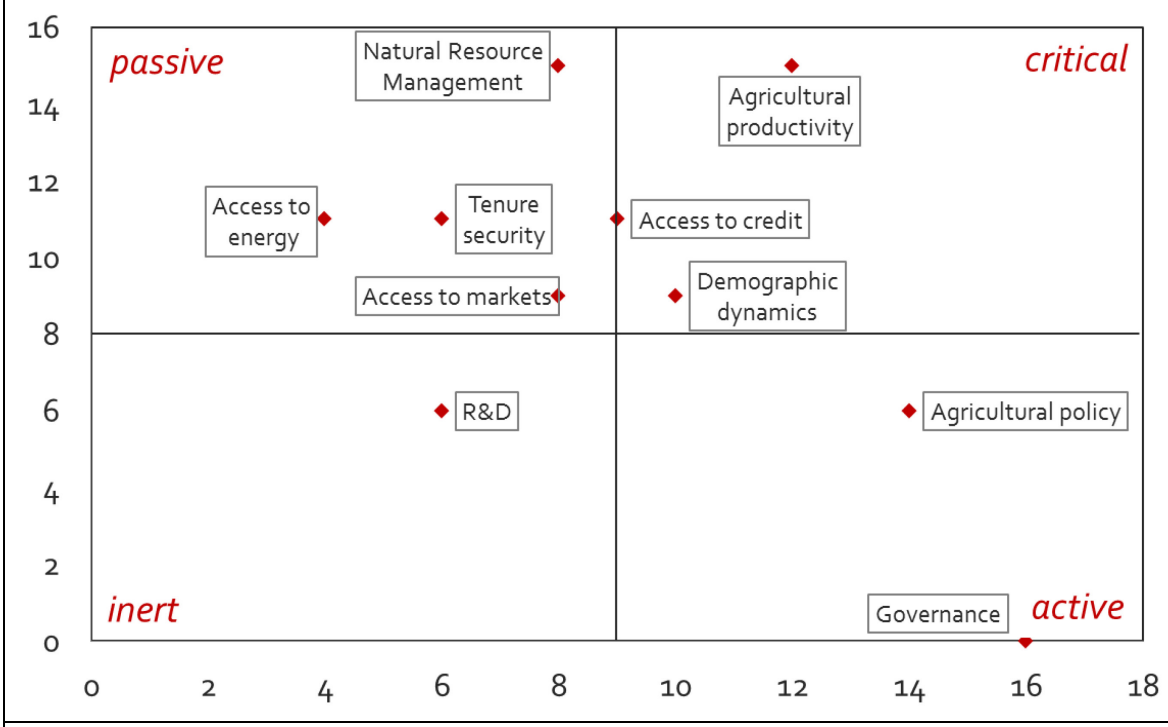

Figure 4: Axis Diagram

Source: own elaboration

A key output is the interdependency diagram or "the system" (Fig. 5). It depicts the results of the influence matrix in a systemic way. The two most critical factors are depicted in the centre of the diagram. Arrows indicate the direction of very strong influences between the factors. Moving along the arrows ("walking through the system"), mutual influences can be seen and thereby systemic scenarios are developed. The narrative scenarios from the scenario workshop (cf. 3.5) will directly contribute to the recommendations (cf. 5).

A walk through the system (summarized from scenario WS in Benin)

The sustained increase of *agricultural productivity* results in increased production and thus increased income of the rural population. This reassures financial institutions of the solvency of agricultural producers and favours *access to microloans*. This strengthens the means of production and consequently the profitability of production: revenues increase, and so do investments in better means of production. Application of these improved means of production increases competitiveness of Beninese products and thus facilitates *better market access*. (...) Access to technical equipment promotes addition of value through processing and *value chains* emerge. This leads to better control over the market, and to the organization of producers. The latter facilitates better lobbying and influence on agricultural policy and governance, resulting in more *inclusive agricultural policy* that takes the needs of producers more into account. Such inclusive agricultural policy also exerts influence on *research and development* as it takes producers' preoccupations into account. *Governance* thus becomes more *participative* and *inclusive*. We witness the involvement of actors in the elaboration of municipal development plans, which results in better management of land titles, *increasing land tenure security*, and better valorisation of natural resources. New livelihood options *decrease pressure on natural resources* and overall rural areas become more attractive, with *less out-migration* of the rural population and more influx of labourers. All this results in a revolution of economic activities in rural areas (...) (WS-I).

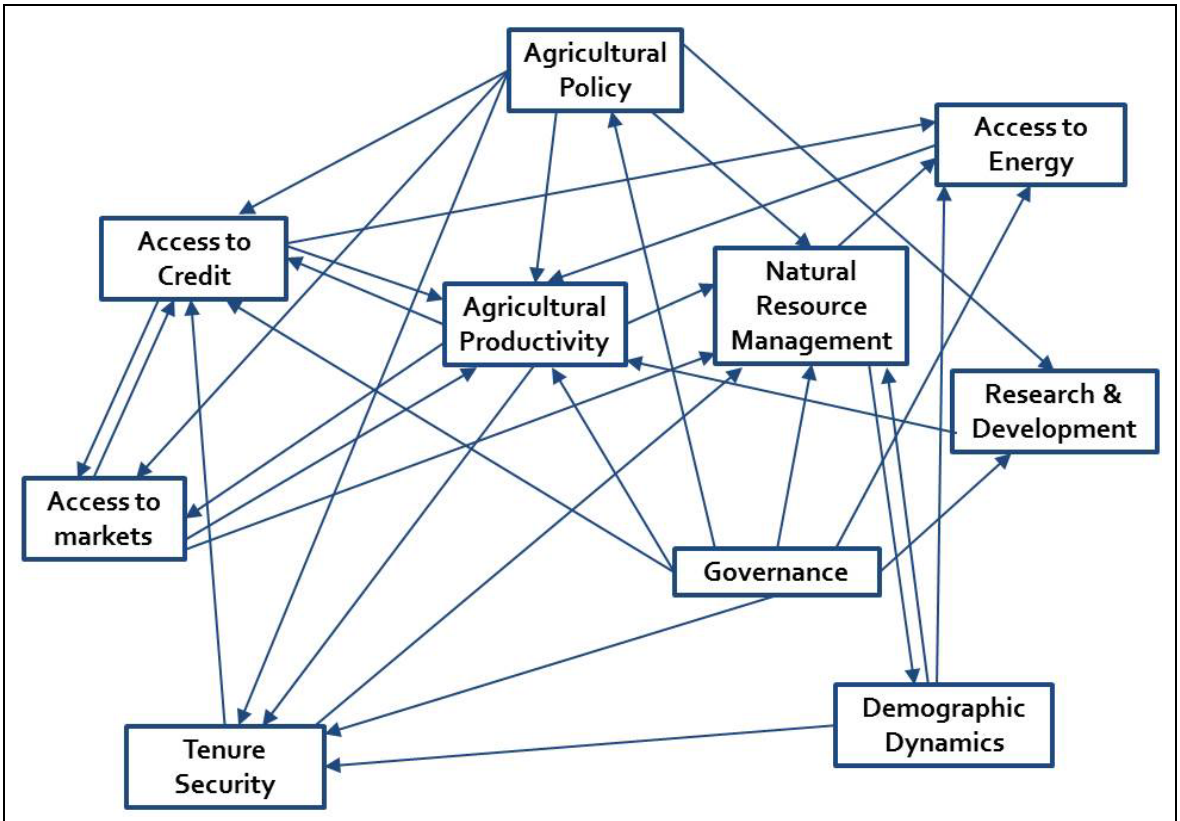

Figure 5: Interdependency diagram for rural transformation in Benin

Source: own elaboration

2.3 USE Phase

The case study areas were selected in discussion with CePED to represent typical aspects of the country – and to capture its diversity. The southern region Ouémé-Plateau with the municipal centres of Pobé and Dangbo is situated in the humid zone with two rainy seasons. Main crops are rice, maize, manioc, cowpea and vegetables as well as oil palm. Fisheries and aquaculture also contribute to local livelihoods. The area is densely populated; land availability is becoming an issue. Transborder trade with neighbouring Nigeria offers specific economic potential, as do the nearby agglomerations of Porto Novo, Cotonou, and Abomey-Calavi.

The central/ northern Borgou with the capital Parakou and N'dali as a municipal centre lies within the cotton zone of central Benin. Besides the dominant cotton and some cashew, which are both mainly exported, main crops are food crops for domestic use – cereals as well as tubers (yams) and legumes. It is a dynamic region and the growing centre of Parakou – which is slowly developing into a transport hub – as well as the relatively sparsely populated hinterlands attracts migrants in search of labour or arable land. Local industry is limited to cotton processing (ginning).

The preliminary results were validated during two workshops held during a third trip to Benin: one with selected donors and ministries, the other with the scenario workshop participants. Additional interviews were carried out in Cotonou to confirm recommendations.

Table 3: Overview interviews by region including all field trips

	Expert interviews	Farmer Focus Group Discussions
Borgou	30	2
Ouémé – Plateau	31	2
Cotonou	44	
Total	**105**	**4 (N farmers = 35)**

Source: own elaboration

3 Trend Analysis

This chapter describes major changes in the dimensions mentioned above by discussing trends and interdependencies of influencing forces of rural transformation identified mainly during the scenario building workshop in Cotonou[10]. It also examines the implications of these changes on social inclusiveness and sustainability.

3.1 Economic dynamics – general trends

Economic dynamics are influential on rural transformation as they contribute to the rate and distribution of productive resources and revenues. Economic opportunities are major pull factors for migration, while economic disadvantages force people either to migrate or to opt for – often environmentally unsustainable – activities based on the (over)exploitation of natural resources. Economic opportunities are not distributed evenly – those who cannot benefit from them run the risk of being excluded as their economic base is lagging behind the more dynamic developments. The following chapter concentrates on non-agricultural income opportunities (in connection with financial services and market access) (cf. 3.1.1.), agricultural productivity as a key determinant of resource use and wealth creation in rural areas (cf. 3.1.2.) as well as value chains as the option chosen by the Beninese government for rural economic development (cf. 3.1.3.).

Benin's GDP growth rate has been exceeding the Sub-Saharan African average since 2012, driven by reforms and modernization of the port sector as well as by increased agricultural production. However, per capita GDP remains well below the Sub-Saharan average (US$ 825.3 vs. US$ 1750; Figure 6) and about a third of the working population earns less than US$ 1.25 a day (World Bank, 2016).

10 The workshop proceedings (in French) are available on request from SLE

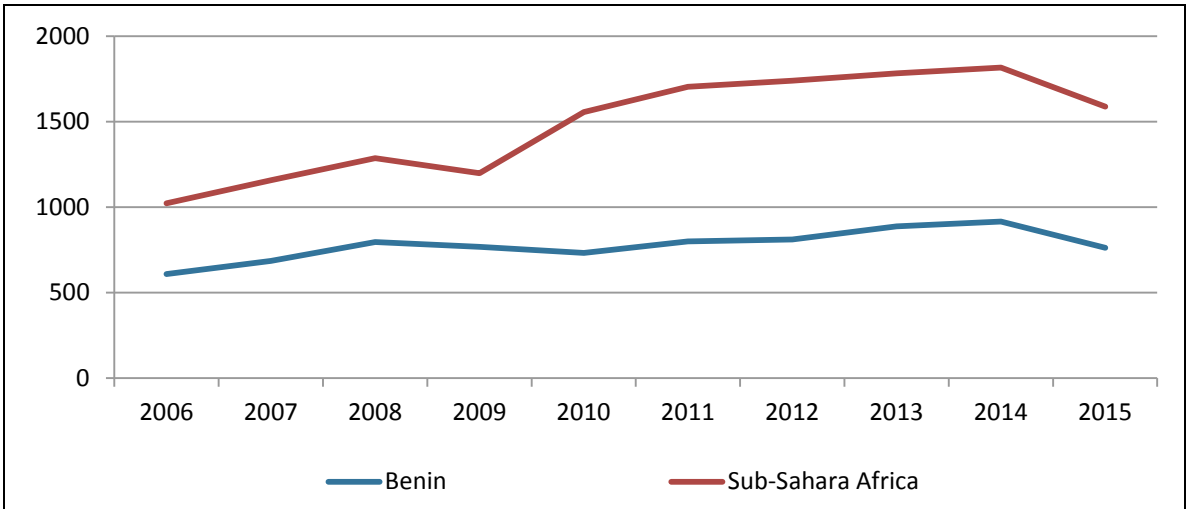

Figure 6: GDP per capita, current US $ (2006-2014)

Source: World Bank (2016)

The economy of Benin continues to show little diversification, and agriculture maintains its crucial role as employer and important source of revenue, employing between 36 and 42.7% of the working population, according to sources (Bongi, Obama, Le Dain, & Cossi, 2009, p. 65; Knoema, 2016), just behind the service sector (46%). Manufacturing or industrial employment (secondary sector) remains underdeveloped. Agriculture (primary sector) and services (tertiary sector) are the main drivers of growth, together they account for 81% of GDP growth between 2011 and 2013 (Toure & MacWilliam, 2014, p. 22).

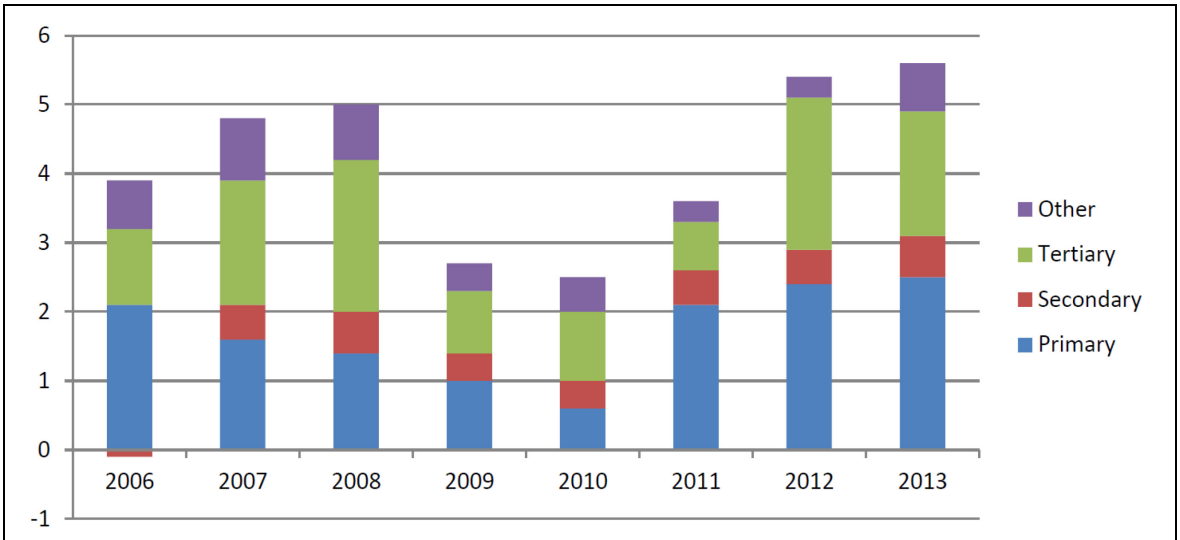

Figure 7: Sectoral contribution to growth 2006 - 2013

Source: MacWilliam & Toure (2014, p. 23)

Despite all political and economic reforms, the economy continues to be dominated by the insformal sector: the national statistics office estimated in 2010 that 97% of all enterprises were informal, according to other sources approximately 94% of all jobs are informal employment (LO/FTF Council, 2014, p. 14). Informality also marks border trade: Informal fuel imports from Nigeria are probably the most visible expressions of the thriving illegal border trade- all over the country, fuel stalls on the roadside offer fuel from jerry cans or balloon-bottles for about half the price of official petrol stations (own observation). Petrol stations often don't even have fuel to offer to clients.

Economic liberalization

The overall economic trend has been a liberalization and privatization of most economic sectors since the late 1980s (Ale, 2013, p. 6). Programmes for political and economic transformation contributed to improved business climate and an increased foreign direct investment (FDI). Benin's efforts to reduce trade barriers, to accelerate customs and clearance procedures and to streamline business-start-ups made it one of the ten most improved economies according to the World Bank "ease of Doing Business"[11], raising it from the 167th position to 151 (out of 189 countries). Simultaneously, persisting high levels of corruption and inefficient government bureaucracy as well as insufficient access to financial services and to reliable power supply continue to pose barriers to business development and international competitiveness (World Bank, 2014).

The trade balance is negative, with stagnating exports and increasing imports (mainly cereals – 28.9% of import volume in US$ in 2014, followed by mineral fuels (14%) and meat (6.8%) (UN Comtrade & UN ServiceTrade, 2015). Export is dominated by cotton (30% of export value), fruits and nuts (cashew, coconut, and Brazil nut - 9.2%). Oil and mineral fuels as well as industrial machinery pass through the country from the port of Cotonou to the landlocked countries further north or Nigeria (CIA, n.d.).

Economic growth has not resulted in sustained and clear trends of poverty reduction (INSAE, 2013, p. 75): while monetary poverty increased by 1% between 2009 (35.2%) and 2011 (36.2%) and remains disproportionally high in rural areas, the incidence of asset-based poverty[12] decreased substantially by 14.6% between 2006 (44.1%) and 2011 (29.5%)(INSAE, 2013, p. 13). This divergence could be explained by relatively stable incomes coupled with rapidly falling consumer prices for assets such as mobile phones or motor-bikes (Toure & MacWilliam, 2014, p. 15). According to statistics, mainly the poorest segments of society were able to improve their status. The Poverty Reduction Strategy Paper (PRSP) concludes: "*An analysis of the factors that explain*

11 More info at http://www.doingbusiness.org/rankings.

12 While monetary poverty is determined by income and expenses, the asset-based indicator is composed of items less subject to cyclical fluctuations: the type and quality of the house inhabited, the infrastructure serving the habitation (electricity, water), as well as items (car, fridge, mobile phone, TV…) in the possession of household members. Other poverty indicators (health, education) are excluded (INSAE, 2013, p. 38).

the persistence of poverty as well as the slide into and out of poverty points to the importance of educational level, field of work, access to credit, basic infrastructure, and initial income in reducing and lifting individuals out of poverty. By contrast, large household size (eight persons and more), seems to be one factor that greatly stymies the ability of individuals to lift themselves out of poverty" (Republic of Benin, 2011, p. xv). Female-headed households continue to be more exposed to asset based poverty than male-headed households: the overall decline of asset-based poverty since 2006 has been more pronounced for male-headed households (Toure & MacWilliam, 2014, p. 15).

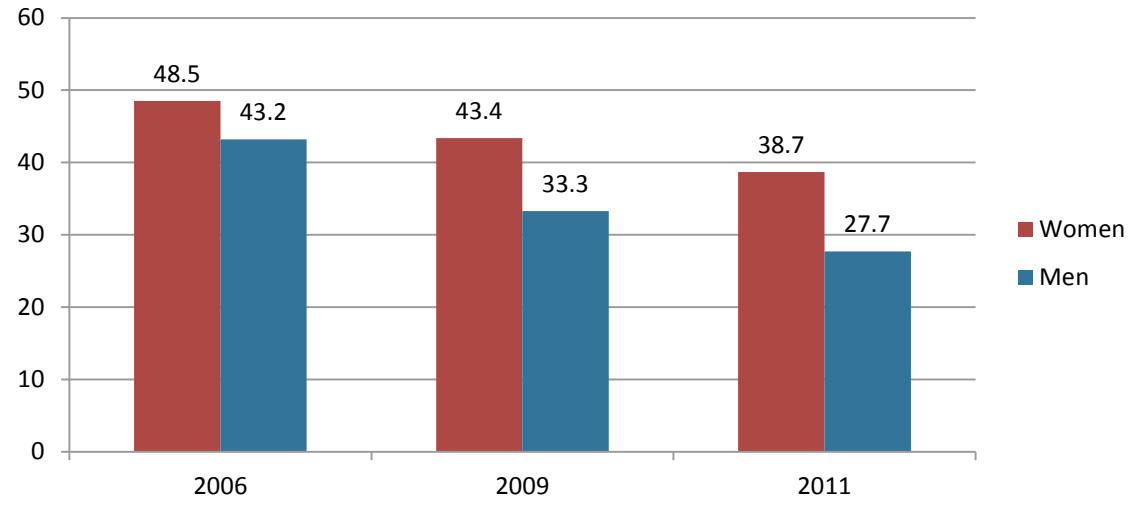

Figure 8: Asset-based poverty by gender (2006 - 2011)

Source: INSAE, EMICoV (2006, 2009, 2011) from MacWilliam & Toure (2014, p. 15)

Despite all progress in improving access to basic social infrastructure, multidimensional poverty[13] remains significantly higher in rural areas (OPHI, 2011, p. 4). Similar to persisting high poverty levels, 11% of the population remain severely or moderately food insecure while another 34% are considered "marginally food secure" (République du Bénin, 2014, p. 13). Most at risk of food insecurity are rural households depending solely on agriculture as their source of income, as well as daily workers and households reliant on humanitarian aid (ibid., p.14).

Stark geographical differences characterize poverty and food insecurity (Figure 9): the northern departments of Alibori (0.63), Atacora (0.59) and Donga are the poorest in terms of multidimensional poverty, the southern departments of Littoral (0.1), Atlantique, Ouémé, Mono and Zou (between 0.33 and 0.4) have considerably lower scores. These figures underscore regional differences in economic activities in- and outside the agricultural sector as well as access to services and infrastructure.

13 The multidimensional poverty index uses 10 indicators to measure poverty in three dimensions: education (e.g. school attendance), health (e.g. child mortality) and living standards (e.g. electricity, assets…) (OPHI, 2011, p. 3).

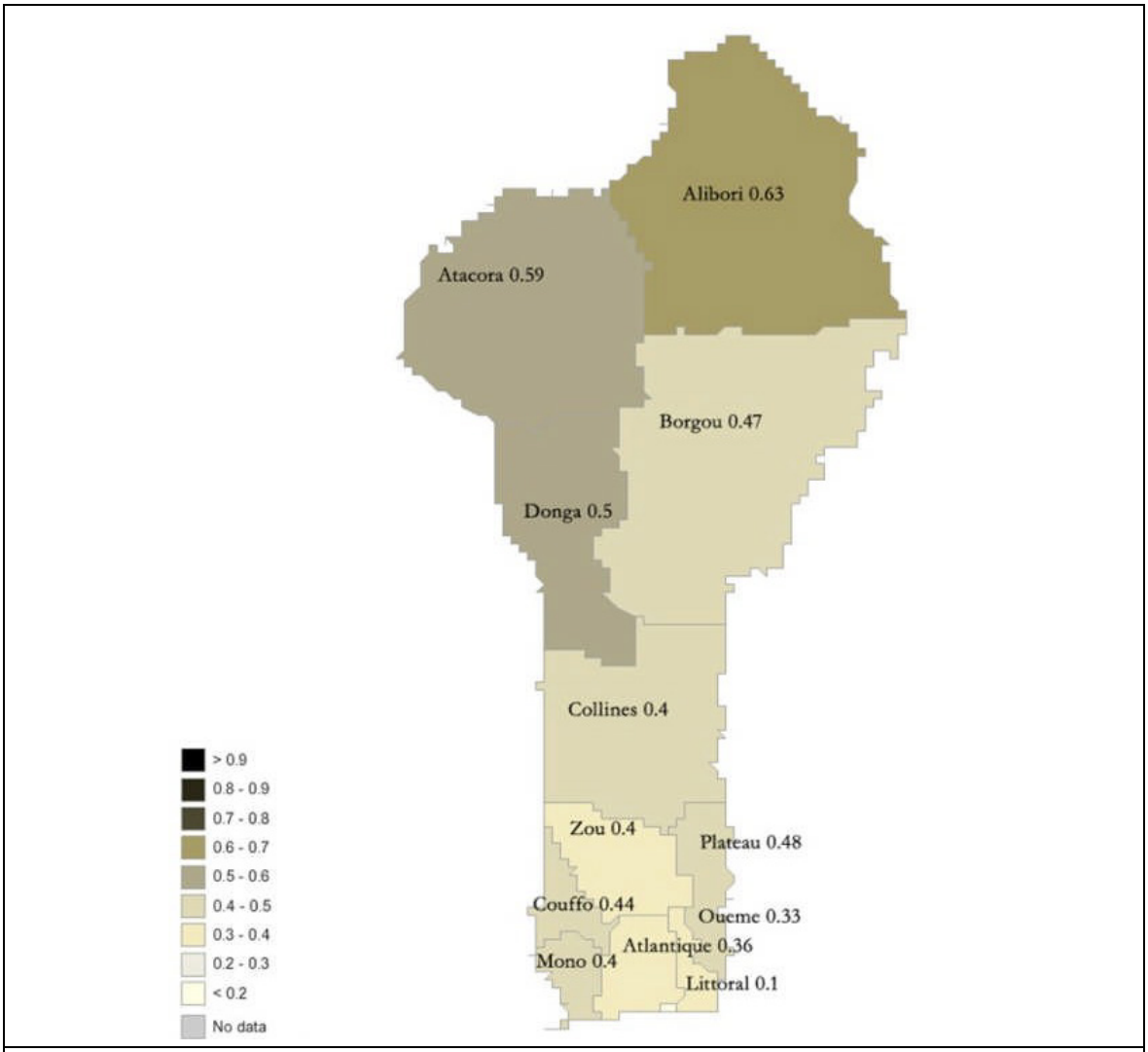

Figure 9: Multidimensional Poverty Index scores by region (2011)

Source: OPHI (2011, p. 5)

According to these figures, GDP growth and structural reforms in Benin have neither resulted in significant changes with regards to incidence and regional distribution of poverty, nor have they led to significant changes in the contribution of the manufacturing sector to the national economy.

3.1.1 Economic framework conditions and infrastructure

Despite the fact that the service sector has stabilized its paramount position for the national economy, there is no clear trend towards non-agricultural income diversification and broad employment effects (WS-B). While increasing rural-urban and rural-rural migration (cf. 3.3.1) indicate the need to find employment opportunities elsewhere than in the rural place of origin, most job opportunities seem to lack a "stepping-up effect", as they represent precarious (under) employment situations which generate barely enough benefit to get along (Int70). Zemidjan drivers – the ever present mototaxis in urban agglomerations – are the most evident example of such precarious underemployment situations.

A slight tendency towards diversification of non-agricultural income can be discerned as processing of agricultural products is slowly taking off in some sectors. This trend is supported by improved market integration of marginal areas due to an improved road network and increasing penetration of information and communication technologies (ICT) as well as by the increasing availability of financial services in rural areas – even if the demand for agricultural credits is still underserved.

Labour market and economic sectors

Trends

Despite overall GDP growth, the labour market and characteristics of economic sectors are rather stagnating. Main trends can be summarized as:

- The port of Cotonou and subsequent transport and commerce services have stabilized their lead in GDP contributions;
- The industrial and manufacturing sector continues to be weak. However, processing of agricultural products has been increasing since 2012/13;
- Despite economic growth, the labour market notes continued high rates of underemployment disproportionally affecting younger people and women;
- The informal sector continues to dominate the economy;
- Despite all these changes, non-agricultural income opportunities continue to be insufficient.

According to World Bank data, services increased their contribution to GDP to 50.3% in 2014, mainly due to an increase in port traffic and consequent beneficial effects on commerce, transport and financial services, whereas agriculture noted a slight decrease to 35.7 % while the industrial and manufacturing sector lingers at 13.8% (Ndoye & Fall, 2014).

The services sector, which employs nearly half of the workforce, is dominated by the sub-sectors transport, logistics and trade. The main factor in transport and logistics is the port of Cotonou, which serves as a hub for the entire region: 80% of the goods entering the port are re-exported to neighbouring countries (Toure & MacWilliam, 2014). Modernization of the port has greatly increased its capacities and stabilized its role as engine for GDP growth (ibid.). Plans envisage a further increase in the capacity of the port by building a deep-water port 20 km south-east of Cotonou, a project which will most probably have negative impacts on the environment.

Financial and communication services are comparatively weakly developed (Making Finance Work for Africa, 2015) as is the tourism sub-sector, which fails to attract relevant numbers of visitors due to an unspecific destination profile as well as inadequate accommodation and transport infrastructure. It has nevertheless been identified as having the potential to grow and become a more relevant part of the Beninese economy (Ndoye & Fall, 2014), including the potential for ecotourism in specific areas (Int20/22, WS-I).

Unskilled non-farm labour

Typical non-farm jobs for people without formal education or skills are motor-cycle taxi-drivers (men), housekeepers (women) or petty traders/market hands (men and women). These jobs are sought in the major urban centres of the country, but also increasingly in the centres of departments and municipalities, where trends of urbanization start to call for the provision of such services (cf. 3.3.1). Urban jobs are usually better paid but harder to obtain, and unemployment figures for urban areas are higher than in rural areas (Int70).

The industrial sector is mainly represented by cement factories, cotton ginning as well as some agro-industrial and food processing plants. Especially the latter have risen in numbers and outputs due to increased agricultural production based on expansion of agricultural land since the 2012/2013 season (ibid.). Manufacturing is limited to processing of agricultural and food products, partly for the domestic or regional market. In municipal centres with permanent markets and some service infrastructure, commerce and processing of agricultural products contribute increasingly to diversified income sources for parts of the population (Int2/6/8/9/10). These market opportunities are also used by the village populations directly selling their products on local markets (Int60). Processing is increasingly done in groups, often by women and with some support of international organizations – as long as these groups depend on external support it is difficult to evaluate whether these developments represent general trends or not.

Typical processing activities include soya cheese making, palm oil refineries, juice pressing (pineapple, baobab) but also fish processing and the milling of corn, cassava, etc. Manufacturing sector includes weavers and tailors, carpenters, metal workers and stove makers. Other non-farm activities depend on natural resources – selling of charcoal or firewood (cf. 3.4.1). People involved in manufacturing employ temporarily according to production needs and often train family members or external staff in an informal learning environment (Int8/9/10).

Despite the fact that cotton is the main agricultural crop of the country, cotton processing is mainly limited to ginning; the fibre is exported to Asian countries for further value addition. A textile industry has not developed, impeded by competition from cheap imports of textiles and second-hand clothes, as well as by low productivity of labour and high energy costs (USITC, 2009).

Benin's labour market continues to be marked by high rates of underemployment (55.8%) (LO/FTF Council, 2014, p. 12), almost all of which is informal employment (94.3%), and by a lack of job opportunities, especially for people with higher education. According to official statistics, access to employment is not evenly distributed: men are more likely to participate in the labour market than women (78% vs. 67%) and official employment rates for men over 25 is over 90%, whereas for young people between 15 and 25 it does not exceed 56% (ibid.)[14]. Younger people

14 In the "Labour Market Profile" the authors note that unemployment in Benin is not an option, given the lack of social safety nets: people are therefore forced to seek informal jobs, part-time jobs or jobs for which they are overqualified. The employment rates are therefore not to be interpreted as indicators of a strong labour market or a booming economy (LO/FTF Council, 2014, p. 13).

are even more subject to underemployment, either in terms of working hours or low remuneration. (MacWilliam & Touré, 2014, p. 20) People with higher education tend to take over the leadership in associations and groups for processing (Int6/18/22). Youth unemployment or underemployment is labelled as a "time bomb" (Int70), and UNDP declares that, like many other countries of SSA, the annual influx of university graduates cannot be absorbed by the national economy (UNDP, 2012)- a fact that led to student strikes and demonstrations in late 2015 and early 2016 and to a strong police presence on the campuses of Abomey-Calavi (Int95, own observation).

Impacts

Despite some changes, the non-agricultural income opportunities continue to be limited (Int33/42/70). Employment is often precarious and informal; many people are employed only part time and/or are overqualified for the work they do. Monetary poverty and food insecurity remain critical (Int70) (cf. 3.1).

There is no major pull by non-farm sectors to drive rural transformation. Despite the increasing significance of the service sector, agriculture dominated by small scale farmers retains its importance for employment, food security and income.

Rural electrification

Trends

- Low electrification continues to disadvantage rural regions and to hamper economic dynamism;
- Rural electrification continues to lag behind the Sub-Saharan average;
- Efforts to increase electrification rates involve on-grid and off-grid solutions. They are however so far insufficient and not implemented country wide.

Persisting low rural electrification rates impede development of non-farm income generating activities such as the processing of agricultural products and other manufacturing activities, even if some processes (e.g. weaving) can be conducted manually. A lack of reliable power supplies continues to constrain most processing and storage options – or is making them more expensive, as generator-powered decentralized or labour intensive solutions have to be chosen, further reducing the competitiveness of Beninese products (Int11/60/70/71).

Rural electrification still lags far behind Sub-Saharan average, with an electrification rate of 9% in 2015 (International Energy Agency (IEA), 2014). Efforts have been made to curb that deficiency, such as a power line connecting Nigeria (fossil energy producer) and Benin (fossil energy consumer) in 2007 or a gas combustion plant near Abomey-Calavi finalized in 2013. However, none of these projects brought the expected amount or reliability of energy supply, which incited the Beninese government to launch a hydro-power project on the Mono in 2015 in cooperation with Togo to be completed in 2018 (WS-B; Vidjingninou, 2016).

All the above-mentioned projects are based in the south of the country – for the rest of Benin, renewable and decentral solutions are the strategic choice of government (Int13). So far, the rural electrification based on renewables is limited to solar-powered light posts and energy kits, main-

ly situated around representative buildings in municipal centres or at major road crossings – the more remote places are still without any electrical energy (Int18/27).

Impacts

Due to limited changes in rural electrification, extremely low electrification rates continue to pose obstacles for economic development and for improved livelihoods. The quality of social services is generally better in cities than in rural areas which are structurally disadvantaged. Decentralized energy supplies have so far not resulted in significant changes for individual households.

Financial sector

Trends

- Private and state run decentralised financial service providers (SFDs) are increasingly present in rural areas;
- Agricultural credits are increasingly offered by SFDs but are still assessed as too hard to obtain, with conditions too unattractive for farmers.

Financial institutions are increasingly present outside the major urban areas of Cotonou, Porto Novo and Abomey-Calavi (WS-E, Int65). Municipal centres usually have banks (or banks are currently under construction), representations of the World Bank and state-funded credit programmes (e.g. PADME - Association pour la Promotion et l'Appui aux Développement des Micros-Enterprises) as well as one or more microfinance institutions, now called "decentralized financial systems". These institutions give credits more easily to non-farm enterprises and trade, as they consider these activities as less risky and more compatible with classical loan cycles (Int23/44/54).

Agricultural credit is currently mainly disbursed by local agencies of CLCAM (Caisses Locales de Crédit Agricole Mutuel) which are local branches of the FECECAM network (Faitières des Caisses d'Epargnes et de Crédit Agricole Mutuel) (Int40/73) as well as by branches of PADME (KfW, 2015) (Int108/109). Credits for agricultural production are expected to become more available through specific loan portfolios by different microfinance institutions and through the national agricultural development fund FNDA (Fonds National de Développement Agricole) (Int65). Farmers describe loan conditions as unfavourable (too high interest rates, to short maturity and reimbursement cycles, over-bureaucratic procedures)(Int23/38/44/54) but with a trend of improvement (Int43). SFD representatives deplore that regulations by the central bank (BCEAO) are too strict; caps on the interest rates make it impossible to cover the high costs in rural areas (Int109). Furthermore, since the SFDs have to acquire cash from regular banks for their liquidity, they are bound by the interest rates of these banks (ibid.).

Multiple credits and over-indebtedness are currently rare (Int40), but some respondents warn that the presence of ever more financial institutions can result in less rigid checks when credits are granted and thus an increased risk (Int23). With a percentage of 6.7%, the PAR90 (portfolio at risk for over 90 days) across the SDF sector is however still higher than the international norms, but has been declining from a high of 9.6% in 2012 (KfW, 2015, p. 10). People doing informal

business are excluded from individual financial services, as are start-up entrepreneurs, people without proper guarantees or identity papers and generally illiterates (Int43). People of these categories can apply for group loans with group liability.

Other sources of finance continue to exist or are emerging: private loans by entrepreneurs help producers or smaller traders to perform their economic activities but are usually accompanied by conditions unfavourable to the loan-taker (fixed prices lower than market price, little margin for negotiation) (Int42/49/57/59). A set-up like contract farming is emerging with input suppliers or processing enterprises which provide in kind-credit to secure reliable supply of quantities or qualities of a given product (Int37).

The sector continues to suffer from negative effects of past scandals surrounding the government promotion of microfinance and illicit private operations over recent decades and resulting in wide-spread credit defaults and uncontrolled disbursement of loans from the side of microfinance institutions (KfW, 2015, p. 10) (Int108/1109).

Impacts

The expanding financial sector has not yet resulted in significantly better access to credit in rural areas. Especially the lack of agricultural credit opportunities is said to hamper investment in increasing productivity, intensification of cultivation, and diversification. Access to inputs, to mechanisation and to value adding processing technology is still out of the reach of most farmers, and farmer organizations to pool and share resources seem still underdeveloped (cf. 3.1.3).

Contested functionality of government funds for agricultural development

The functionality of the two major governmental funds for rural or agricultural development - FNDA (Fonds National de Développement Agricole) and FADeC (Fonds d'Appui au Développement des Communes) is questioned by international actors (Int67/71/73).

FNDA (cf. 3.2.2) is criticized for being politicized, as posts have been assigned without job descriptions, the plan for operationalization lacks a clear strategy and does not involve international partners or national actors with experience in the sector. The fund is thus felt by international observers to lack overall transparency (Int67/71). The original idea of the FNDA was based on joint funding by the government of Benin and direct budgetary aid from partner countries. However, the partners have been hesitant to invest in a structure when they doubt that it will accomplish its original aim, namely to finance small producers in rural areas (Int67/71).

FADeC (cf. 3.2.1) is a budget for municipalities dedicated to priority issues such as health care, education, infrastructure and agriculture. It is often used for infrastructure and technical equipment. If expenditures and processes are not closely monitored – which is more and more the case since FADeC left the pilot stage – it opens the gate for mismanagement (Int61/67).

Markets

Trends

- With over 50% of GDP being generated related to import-export services in the port of Cotonou, Benin continues to be highly dependent on international economic and trade dynamics;
- Major improvements in the road network since 2000 have facilitated market access both locally and regionally;
- Increased purchasing power of consumers has stimulated more diversified production by small scale farmers;
- Low competitiveness of Beninese products (standards, prices) continues to pose obstacles to better regional and international market access.

As a major hub for regional trade, depending on exports of few primary agricultural goods such as cotton and with the value of imports exceeding that of exports (Figure 10), Benin is highly dependent on international economic and trade dynamics which lay beyond its sphere of influence. On the local level this close link to external markets can cause problems, especially in terms of competitiveness and prices of local products (WS-E, Int23) or when developments in a major trade partner, e.g. the devaluation of the Neira in Nigeria, lead to a reduced demand or a price drop for certain products that are mainly sold to Nigerian traders (e.g. palm oil) (Int59).

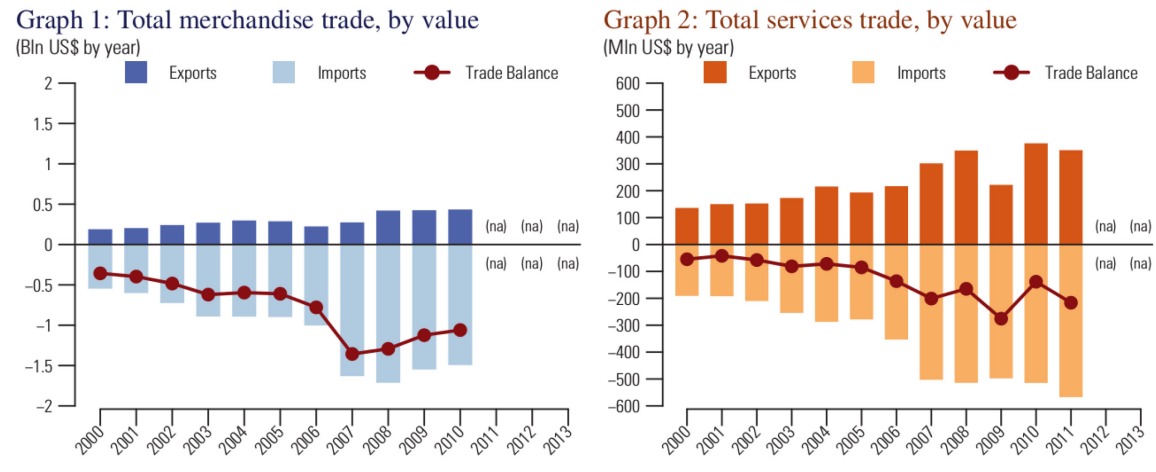

Figure 10: Trade balance of goods and services 1) in US$ billion 2) US$ million (2000 - 2013)

Source: UN Comtrade & UN Service Trade (2015)

The major improvements in the road network since 2000 have facilitated market access both locally and regionally, but challenges of road maintenance persist (Int36/47/49, WS-E). The integration into regional markets represents a major potential which, according to respondents, has not yet been properly exploited. The weakly developed agro-processing sector impedes more

substantial benefits from the primary production. Some obstacles to more competitiveness are so far a lack of market research, sub-standard production, as well as missing infrastructure to control standardized production (Int65/70). In general, the potential of the regional market is higher than that of markets abroad: it is easier to produce for regional markets, as different tastes and expectations abroad pose barriers to trade (Int70, WS-C).

Increased purchasing power of consumers has contributed to more demand and thus a more diversified production of marketable goods (Int23). Improvements in road and storage infrastructure have stimulated market places (Int36/47) as well as the professionalization of small scale farmer production (Int1, WS-B) – even if the latter remains constrained by insufficient extension services and R&D (cf. 3.2.2). Usually, small scale farmers produce partly for local markets (Int11/44), the share of what is sold depends on the crops grown as well as on the yields and financial needs (Int44). Constraints for market access continue to be sub-standard inputs (and thus low or sub-standard production), insufficient storage facilities, and a lack of feeder roads (Int49, WS-E).

Bringing products to the market is either organized by the producers themselves or by traders collecting goods (Int1/44). Prices are usually dictated by the traders, and their negotiation position is stronger when they collect the goods at the farm gate or when they provide credit to the farmer in need of cash before the harvest (Int4/42). Farmer organizations and extension services encourage direct marketing through farmer organizations and have started installing storehouses as part of a warranty system – the producers get money from the farmer organization when they deliver their products to the storehouses and receive an additional payment if the final sale yields more than expected (WS-E, Int44). Producers can decide which option suits them best, depending on the urgency of cash needs and the capacities of the producing family (Int1/54). However, farmers repeatedly complain that market access is controlled by traders and businessmen and that especially cross-border trade is liable to so much corruption and harassment that it keeps them out of direct marketing (Int1/54).

High prices with simultaneously limited quality and lacking standards impede the competitiveness of Beninese products. Quality standards and certification by national laboratories are a prerequisite to enter regional markets and to break through on the local market (e.g. quality control for pineapple juice) (Int70). The dysfunctional national certification agency (Int67) is thus one obstacle to international and regional market penetration.

But even within the country, some local products are outcompeted by imports: for example rice does not compete in price and quality with cheap Thai rice, due to poor seed quality and inadequate post-harvest handling and storage (Int37/61/64). High costs for fertilizer and for local transport are additional disadvantages for local producers. (WS-E, Int49).

Impacts

Improvements in market access and increased domestic demand has resulted in increasing market production and diversification and have thus contributed to the increasing professionalization of agricultural production in Benin. However, low competitiveness of Beninese production and sub-standard quality of some products have contributed to important losses of producers (rice) and continue to inhibit penetration of regional and international markets.

Information and communication technologies

Trends

- Mobile phone subscriptions have increased enormously since 2005;
- The number of internet users is stagnating and remains well below the Sub-Saharan average;
- Agricultural information systems are beginning to disseminate information for producers via SMS.

The development of Information and Communications Technology is progressing at a fast pace in Benin. It is actively promoted and formalized by the Government through its National Information and Communication Infrastructure Plan (2005) and explicitly encompasses the agricultural sector (Global Forum for Rural Advisory Services, 2015). It is expected to boost economic growth, to contribute to political participation and to help achieve socio-economic and environmental development goals. Besides more traditional instruments of communication like radio, television and print media, more and more information about weather, development of prices, logistics and cultivation methods is disseminated through mobile phones and – to a lesser degree – online tools.

Mobile phone subscriptions increased impressively from only 7.3 (per hundred people) in 2005 to 102 in 2014 respectively (World Bank, 2016). Workshop participants confirmed that since 2005, mobile phone networks and mass media such as TV and radio have been increasingly penetrating rural regions (WS-B), although the spread of electronic devices is hampered by insufficient electricity security.

The number of internet users in Benin remains relatively low – stagnating around 4-5% in recent years (2011-2014) compared to the Sub-Saharan average of 19.2% (2014) (World Bank, 2016). In the absence of statistics concerning urban and rural internet access, observations indicate that internet users are concentrated in the urban centres where connections are much better.

Two agricultural ICT systems are currently in place in Benin. Info Prix Benin (http://www.onasa-benin.org) monitors the 25 most important staple crops at 64 rural marketplaces, processes and edits the data collected and disseminates summarized and comprehensive information to its subscribers. In a similar manner Esoko (http://www.esoko.com) can provide timely information and advisory services including live market feeds or options for direct SMS marketing.

Impacts

The exposure to mass media has impacts on social norms, value systems and perceptions (WS-B) as it opens the door to new information, visions of different lifestyles and patterns of social interaction. It adds to increasing external influences through increasing urban-rural exchange and contributes to what workshop participants termed "social mimicry" (cf. 3.3) to describe the expansion of "modern/western" values and the simultaneous weakening of traditional social cohesion and safety nets.

The increasing information flow seems not to have positively affected the labour market or non-farm income opportunities as no corresponding changes in these can be observed. However,

increasing communication contributes to a stronger integration of urban and rural spheres – and given the drop of commodity prices that afforded access to mobile phones to even the poorest quintile of society, this integration is partly inclusive.

Summary

There is no clear trend towards non-agricultural income diversification and there are no broad employment effects within the stable economic growth in Benin. Increasing labour migration mainly results in precarious underemployment, often within the service sector. Nevertheless, slight trends of economic diversification are supported by increasing market integration and an improved road networks and lead to growing economic activities in small urban centres in rural areas.

Framework conditions like electrification or access to ICT have been improving but remain behind the Sub-Saharan average. Financial services are increasingly available in rural areas, but mostly not adapted to the needs of agricultural producers. The importance of regional markets for Benin cannot be exaggerated. However, the benefits of regional integration are not yet fully exploited due to harassments of traders, sub-standard production, and inadequate infrastructure for commercialization.

The changes in the economic framework conditions contribute to moderate changes in rural livelihoods characterized by (slowly) increasing professionalization and commercialization of production and increasing rural-urban linkages. It is however not inclusive, as the poorest quintile of the population does not have the same opportunities to intensify agricultural production or to seek alternative non-farm labour, and as there are strong regional differences in infrastructure supply and energy access. It is also **not sustainable**, as it is not accompanied by measures for better resource management such as soil-fertility measures.

3.1.2 Productivity and diversification in the agricultural sector

The agricultural sector continues to be characterized by small scale farmers mainly cultivating starch crops like corn, cassava, yams and other staple crops like rice, beans and groundnuts on small family plots, accounting for about 90% of the country's agricultural output. In 2008, corn was produced by 85% of farming households and thus by far the most widely cultivated crop, followed by yams and manioc (both 31%) (République du Bénin, 2014, p. 68). Cotton – which was grown by 11% of farmers in 2008 (ibid.) – contributes about 35% to the country's export revenues, followed by cashew and palm oil. More recent initiatives are promoting the cultivation and marketing of shea nut and pineapple. Livestock production is mainly concentrated in the north of the country and characterized by traditional husbandry practices of bovine, goats, pigs and poultry and contributes about 6% to the GDP (Aregheore, 2009).

Small farms between on average 1.99 ha (République du Bénin, 2014) and 3.3 ha (Kherallah, Minot, Kachule, Goura Soule, & Berry, 2001) continue to be the dominating farm type (50% under 2 ha; over 80% under 4 ha: Figure 11; WS-B; WS-L), albeit with stark regional differences: the propor-

tion of farms under 2 ha is much higher in the southern departments of Couffo (93%), Mono (89%), Atlantique (79%) and Zou (61%). In contrast the central and northern departments of Borgou, Atacora or Collines have higher rates of farms exceeding 5 ha. (République du Bénin, 2014, p. 67) On a national level, 63% own the land they cultivate and/or 46% use family land[15], 14% rent land and 5% cultivate borrowed land or share crops (ibid. p. 67).

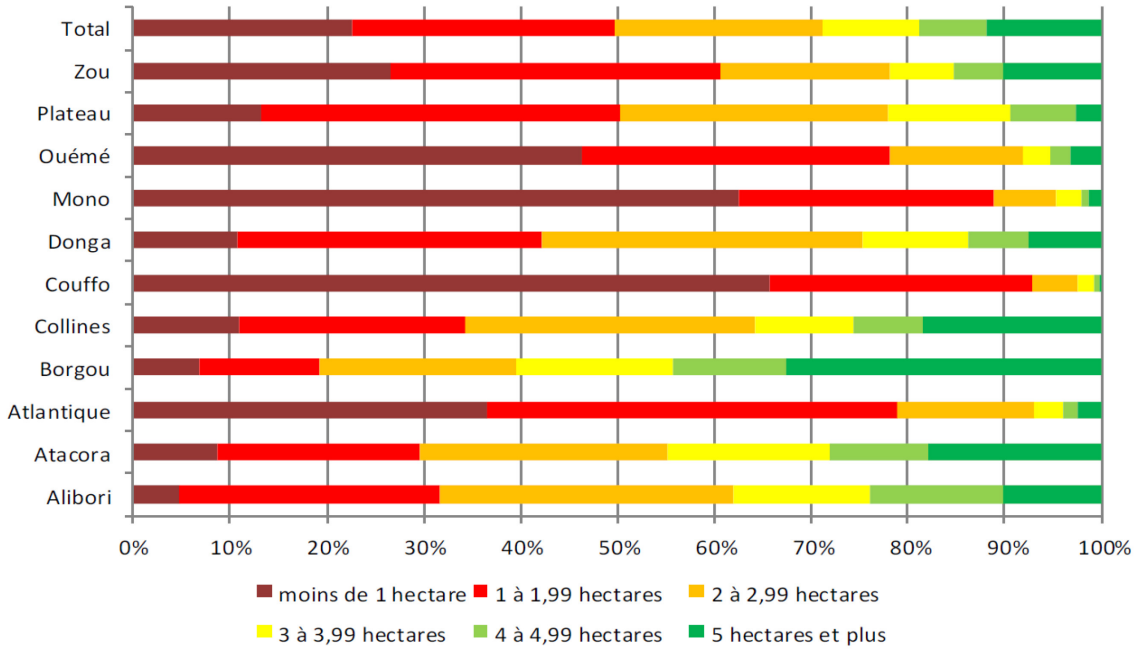

Figure 11: Farm sizes in 2013 per department

Source: Household Survey AGVSA from République du Bénin (2014, p. 67)

Trends

- Increased role of the still weakly developed private sector and in consequence improved availability of agricultural inputs, financial services, and mechanization since the year 2000;
- Beginning professionalization and diversification of production (Int3/43/50, WS-B);
- Decrease of the percentage of farming households from 53% to only 36% of the total population between 2008 and 2013 (République du Bénin, 2014, p. 65) or to 45% according to other sources (Knoema, 2016).

Various developments constraining more dynamic agricultural development emerge simultaneously:

15 Multiple answers were possible during the AGVSA household survey

- Decreasing soil fertility leads to lower yields (per ha and per labour hour) for most products and forces to expand land under cultivation to maintain and increase production figures (WS-E; cf. 3.4.1);
- Weak adoption of innovative technologies partly caused by a continued lack of financial services (cf. 3.1.1) as well as by (still) weak extension services (cf. 3.2.2) and unattractive farm gate prices for most products (WS-E, Int65);
- Inputs (quality seeds and fertilizer) are often not available as and when they are needed because their supply is organized by the state and focusses on cotton, a set-up that lacks efficiency and flexibility (Int1/2/14).

Hence, agriculture currently produces below its potentials and remains – despite higher agricultural prices for commodities than before 2008 – an unattractive venture for many young people. In order to maintain or increase production, uncultivated land is increasingly taken under cultivation, fallow periods are shortened and, all in all, higher pressure is exerted on natural resources (cf. 3.4.1). Another option is migration into cities in search of (mostly precarious) jobs.

Pastoralists at risk of social exclusion?

In West-African land use systems, livestock is often an essential part of livelihood strategies of the poor and plays a multifunctional role for manure provision, diversification and accumulation of assets, food provision, insurance against unexpected events, saving option, traction, and finally social and cultural functions (Callo-Concha, Gaiser, & Ewert, 2012) Production in Benin is mainly concentrated in the northern grasslands where between 41% (Borgou) and 87% (Alibori) of the households directly depend on livestock as main economic activity (USDA, 2014).

In Benin, there are two traditional modes of livestock keeping: sedentary production in the south and transhumant production in the north. The latter accounts for about 80% of the national stock, and are mainly associated with the group of the Peulh (Fulbe/Fulani). Since mainly traditional and rudimentary methods are used for animal husbandry in particular by the (semi) nomadic tribes, livestock quantity and quality are highly dependent on environmental conditions. Suitable grasslands for grazing are under severe pressure from a strong population growth and climate change related environmental effects (Chauvin, Mulangu, & Porto, 2012).

Changing environmental conditions force pastoralists southwards in the quest of new rangeland. While the government tries to install cattle corridors to reduce the potential for conflict between farmers and herders, these attempts have so far only been partly successful as both sides seem unaware of demarcations of these corridors or just ignore them. The result is a growing potential for conflict and social exclusion (Int11/53). The proclaimed support to livestock based value chains has so far not led to significant effects on the main producers of livestock.

Transhumance as a semi-nomadic lifestyle with phases of high mobility sets the Peulh apart from other segments of the population. Health and education services are usually not adapted

to their mobility; in consequence, school enrolment figures are less than for other groups of the population and basic health services are not easily provided. In addition, according to school directors, many Peulh still do not hold school education in high esteem as it allegedly does not teach the relevant skills, even if this rejection of formal education is slowly decreasing (Int16). Altogether, these tendencies lead to a vicious circle of further and mutually strengthening effects of exclusion and self-exclusion in the case of the Peulh.

A slight trend is noticeable towards diversification of crops within a production unit and overall in the agricultural sector (Int33): it serves for risk reduction (Int44) and revenue generation at different times of the year (Int54). New ventures like aquaculture or the rearing of small mammals are emerging regionally (Int43/44/54), and horticulture is an expanding activity with (so far) reasonable productivity and existing markets.

However, observers deplore a lack of support for technically more demanding enterprises such as aquaculture, which is often taken up as side business by non-specialists (Int43/48) and a lack of support for food crops with negative consequences on food security and nutrition (Int33/73). The national agricultural strategy (PSRSA) declared a diversified support to agricultural value chains as crucial for the reinvigoration of the agricultural sector (cf. 3.2.2.). However, efforts do not live up to the discourse of diversification, the focus of agricultural policy and support services are still mainly on cotton (Int4/11/24/68/69/71). Activities to support production, processing and commercialization are insufficient in most agricultural sub-sectors (Int2/68) (cf. 3.1.3, 3.2.2).

The prevailing strong support for cotton has various consequences: fertilizers and phytosanitary products distributed by the state are specific to cotton; other inputs are often not accessible because the private input-market did not develop due to the unequal competition. Thus, farmers have to subscribe to cotton production and become organized in cotton unions in order to access fertilizer (Int28) – which they then apply across their various crops at below the recommended doses (Int2/3/14/58). Extension services are disproportionally focusing on cotton since the performance of advisors is evaluated according to cotton production (Int11/67/73).

Crops such as cotton, oil palm, corn, or soy are less productive than they could be (Int11, WS-E)[16] and yields per ha are said to be decreasing (Int1/14/22/42/48/58/65). That perception is contradicted by statistics issued by the Ministry of Agriculture, according to which productivity per ha has remained approximately stable with slight fluctuations since 1999 – with the exceptions of pineapple, yams and tomatoes for which productivity has increased (Figure 12).[17, 18]

16 Comparison of cotton productivity per ha in Benin with China, Brazil and India (2007): China (1231 kg/ha); Brazil (1349 kg/ha); India (600 kg/ha); Benin 975 kg/ha) (République du Bénin, 2008, p. 13); (INSAE, 2009).

17 This productivity does not cover productivity per fertilizer, phytosanitary products, improved/purchased seeds or water applied nor of time spent in the field. The perception of decreasing productivity therefore does not contradict the stagnating or partly increasing productivity per ha.

18 Pineapple yields/ha do not figure in the graph as they are on a different scale.

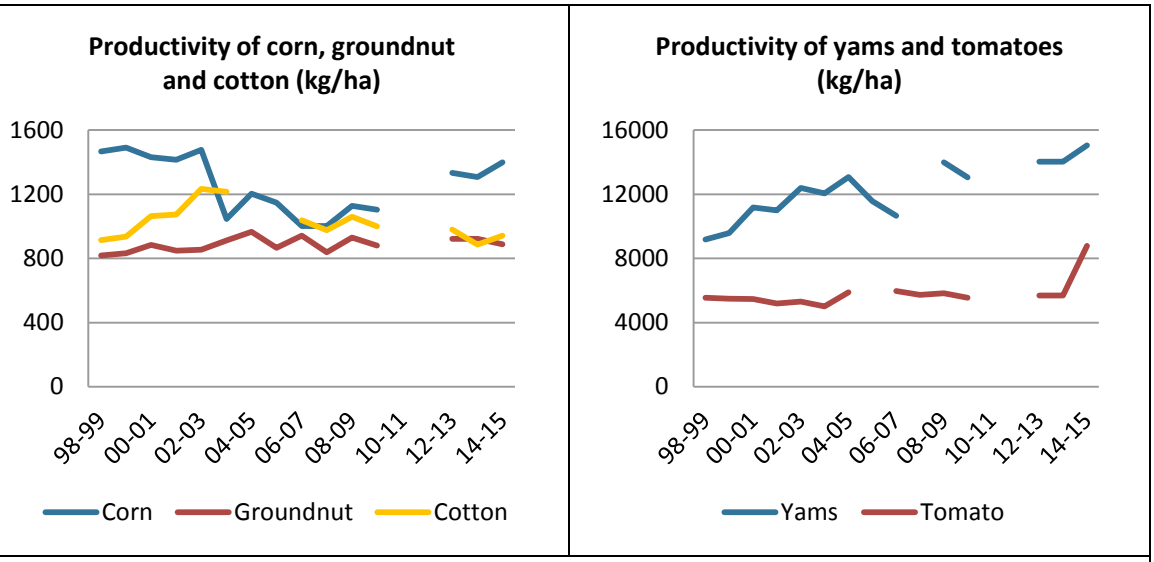

Figure 12: Productivity of corn, groundnut, cotton and yams and tomato (1998 - 2015)

Source: own elaboration, adapted from INSAE (n.d.)

A decline in total factor productivity on a national level and in particular in the agricultural sector supports the perception of producers (Table 4). Production numbers are thus maintained by increasing agricultural land rather than by productivity increases (Toure & MacWilliam, 2014, p. 19).

Table 4: Changes in total factor productivity by sector, 1983 - 2008 (%)

Formal sector	Agriculture	-10
	Manufacturing industry	-2
	Industry except manufacture	-3
	Market services sector	-12
	Non-market services sector	-8
Informal sector	Agriculture	-9
	Non-agricultural activities	-11

Source: Balaro et al. (2010) dans MacWilliam & Touré (2014, p. 19)

As main reasons for decreasing (or stagnant) productivity, respondents evoke soil fertility issues (République du Bénin, 2014, p. 70) (Int1/4/24/65), degenerated seeds (Int66), poor water management (Int44), pests, diseases, and insufficient plant protection. These issues are aggravated as producers are increasingly unable to anticipate ideal growing conditions because of weather variability (Int48; cf. 3.4.2).

Inland fisheries in southern Benin

Inland fishing is mainly done in the lakes, rivers, and lagoons of the southern departments of Ouémé, Atlantique, Littoral and Mono. In contrast to marine fishing and aquaculture it requires little initial investment and is based on the exploitation of open access resources. All fishing activities (marine, inland, and aquaculture) contribute 3% to GDP and create 610,000 direct and indirect jobs (Int63). Inland fishing families usually belong to the poorest quintile of the population and social indicators are below the Benin average: a high illiteracy rate of 90%, many drop-outs after primary school.

Fishing communities face increasing problems: overexploitation of resources and the catching of ever smaller fish have resulted in decreasing catches; sprawling urbanization displaces fishing households and increases pollution of water bodies. Some techniques to raise fish in cages (similar to aquaculture) are employed to counter these challenges.

Demand for fish exceeds the local production, so that imports of frozen fish are necessary. The promotion of aquaculture is one strategy to increase the supply and to diversify income sources of those involved. Aquaculture is however more demanding in terms of resources and specific know-how and is usually not performed by those fishing families who witness decreasing catches.

Impacts

The decrease in the proportion of farming workers from a half to a third of the working population over 5 years is a major consequence of the continuously low agricultural productivity and the failure to relaunch the agricultural sector in line with the strategy document PSRSA. Migration is the result of limited options in rural areas and of persistently high rates of rural poverty and food insecurity.

The prevailing support for cotton is an obstacle to the stated objective of the agricultural strategy to diversify and professionalize production. Government interventions also prevent the development of a private sector delivering diverse agricultural inputs and offering agricultural services.

Climate variability and increased pressure on soil reduces production options; stagnating productivity is one indicator of limited options. This lack of options is not evenly distributed across the country – roughly speaking, the south has better soils as well as more regular rains but also a denser population and little reserves in terms of land (Int33/65). The centre has soils of limited fertility and more complicated water supplies (less rain/more erratic rain/limited water storage facilities) but land is still available for the expansion of cultivation (Int27). The far north and the north-west have the least fertile lands and an increasingly arid climate. In a non-irrigated system, these regions are apt only for specific crops (e.g. fonio) or for animal rearing.

These changes in the geo-climatic framework conditions contribute to and exacerbate demographic dynamics: people from disadvantaged regions migrate temporarily or permanently to more benign areas, either in search of labour or of land. These migrant workers are also the reason

why the rural outmigration that has been noted even from the more fertile regions has so far not led to a net shortage of labour during peak seasons in the cultivation cycle (Int13/21/54) (cf. 3.3.1).

Summary

The insufficient support for diversified agricultural production and value addition results in sub-standard productivity with negative consequences for the incomes of small scale farmers. The low productivity leads to encroachment on land so far not under cultivation, which is a potential source of conflict with the forestry department or with herders. Low productivity also reduces revenues per labour invested and thus the overall profit that farmers get from their activities.

These economic limitations force parts of the population to search for additional income in urban and peri-urban areas, which grow in an unplanned manner and are unable to absorb the available labour force. **The under-performance of the agricultural sector is thus a major driver for increasing rural outmigration**.

3.1.3 Challenges in developing value chains

Another challenge to the ongoing process of diversification and professionalization of small-scale farm production is the organization of agricultural sub-sectors into sectoral value chains as previewed in the 5-years plan of the ministry of agriculture, livestock and fisheries (MAEP) (Int61; cf. 3.2.2.). This includes the organization of small scale producers, the organization of supply chains as well as of services in processing and commercialisation.

The farmers' and producers' organizations that already existed under the socialist production system are characterized by a rigid vertical organizational set-up with a strong representation at national level but a rather weak appreciation at the local level (Int27/54). Input supply chains constituted by private actors continue to be weakly developed. Government administrative capacities are devoted to ensuring the cotton supply chain (Toure & MacWilliam, 2014, p. 24). Some rudimentary value chains are emerging in some sub-sectors (pineapple, shea nut), often with the support of international organizations.

Trends

Despite the intention expressed in PSRSA to develop thirteen crops into value chains to allow for more value addition and to professionalize the agricultural sector, government action towards this end is weak:

- Diversification of the agricultural sector continues to receive little support through government structures. The focus rests on cotton despite the heralded diversification;
- As a result, value chains continue to be underdeveloped. For some crops, however, they are beginning to emerge, often supported by international organizations;

- This is facilitated by interbranch organizations or dialogue platforms bringing actors in an agricultural sub-sector around a table to optimize services. Some interbranch organizations are beginning to form for some crops such as pineapple;

- One type of actors within these interbranch organizations are farmers' organizations. They have existed from village to national level since the socialist era, but because of the continued strong government support for cotton, these organizations tend to be strongest for cotton production and are adhered to in order to access fertilizers and other inputs;

- Supply chains providing quality inputs and services for conserving, processing and commercializing primary agricultural production continue to be underdeveloped.

SONAPRA, the national society for the promotion of agriculture (*Société Nationale pour la Promotion Agricole*), is central to the diversification and promotion of value chains (Int68). However, the society is mainly focused on cotton (Int4/11/24/71) and experts claim it depends on too many intervening government structures to manage its tasks efficiently and successfully (Int68). Consequently, relatively little is happening in terms of implementation: the state and structures like SONAPRA are increasing their influence not just in cotton but also on rice and other crops (Int69); however, with unsatisfactory results, since fundamental work in terms of basic research, input provision and market research has not been done properly (Int68). As a result, the private sector lacks support and cannot develop freely, as it cannot compete with state subsidies.

Despite the weak level of implementation, the introduction of the concept of value chains has started to bring along changes within research, production and processing (Int2/68) – changes which are so far considered insufficient and inconsistent (Int2). One partner for the organization of value chains are farmer organizations.

Generally speaking, farmer organizations exist from the village to the national level – often with state or NGO support. This vertical structure is intended to ensure representation at the central level (Int1) and in fact ensures the capacity to lobby for producers' interests vis-à-vis the ministry and other institutions (WS-L, Int61). However, according to local representatives of producers' unions, these national representatives tend to become detached from the grassroots and to neglect the issues of marginal, poorly educated producers in favour of more eloquent and active representatives and/or driven by political or personal interests (Int54). Farmers' organizations show some tendencies of growth, as producers increasingly understand the benefits of acting in groups (Int4). However, many producers come together solely to access fertilizers or credit (Int11) and not to effectively cooperate and generate a stronger basis for negotiation or bargaining and lobbying (Int28). The fact that most producers who join municipal farmer unions (UCP) do so in the sub-sector of cotton (the only one that provides inputs to fertilizers) supports that statement.

Many farmer organizations or representations were created by decree by the Beninese government – the chamber of agriculture (CAB) as well as the UCP or its national federation FUPRO (*Fédération des Unions de Producteurs du Bénin*). The degree of effective government support for these structures varies and administrators of municipal unions complain both of a lack of support by the ministry and of a lack of consideration of grassroots issues by the central representations (In54). Nevertheless, these farmer organizations constitute the natural partner for the govern-

mental advisory services on municipal level (Int4/65) and are one set of actors in the attempt to create inter-branch organisations or dialogue platforms – such as the so-called "interprofessions" – for a further organization of the value chain (Int54/64).

"Interprofessions" – a tool for inclusive value chain development?

'Interprofessions' are platforms for actors within one (agricultural) sub-sector. They emerged in Western Africa in the 1990s when governments – incited by IMF and the World Bank – started to withdraw their engagement in the agricultural sector. They were initially supported by donors and governments in order to maintain a structure for value chains in the absence of state actors (Inter-réseaux, 2008, p. 2).

In Benin, the "*Association interprofessionnelle du coton* (AIC)" formed when the union of producers (represented by FUPRO and with organizational links to input importers) entered into a permanent relationship with the association of ginners, who were dealing with processing and commercialization of cotton fibre. The task of AIC was to negotiate the conditions of cooperation between the sub-groups of professionals (e.g. producers, ginners, input suppliers) for better management of the cotton sector (Inter-réseaux, 2008, p. 5; Int28).

In 2011/12 the central government dissolved the AIC and de-facto renationalized cotton commercialization and input supply (Int21/68), allegedly as a reaction to serious irregularities within the AIC and in order to grant a fair redistribution of benefits of the sector to small scale producers (Int1/68). The state tried to use a similar set-up as the AIC but with central planning – leading to inputs arriving late, declining production, and post-harvest losses caused by inadequate transport and limited processing capacities due to bad maintenance of the ginning machinery (Int28).

'Interprofessions' are thus not per se ensuring inclusive value chains; they are merely a platform for value chain development. Poorer small scale farmers and suppliers or processors still need their respective organizations to protect their interests. These organizations need to be represented at the dialogue platforms, if value chains are to be inclusive.

"Interprofessions" or similar forms of dialogue platforms are broadly considered the adequate concept for the organization of value chains or of agricultural sub-sectors in Benin (Int21/50/66/68). Such platforms on a municipal and departmental level are suggested to allow for more transparency, more direct contact, more trust and more consideration of the needs of individual sub-groups of professionals (Int21/67/68/69). They are to be composed of producers as well as input suppliers, traders, processors, merchants. Around this sub-sector, services can be provided such as advisory services, financial services, market information and/or marketing support. A private sector however is still underdeveloped, input supply as well as marketing channels continue to be weak and disadvantage small producers, who face proportionally higher costs to access inputs or markets than big producers (Toure & MacWilliam, 2014, p. 24).

In order to organize value chains, all actors are encouraged to assemble around a round table to negotiate the conditions and details of the organization (Int54). So far, the level of organization within the sub-sectors varies between the main crops: producers of pineapple, rice, cashew and some animal products (eggs, poultry) are organized and start to link up with input suppliers and commercialization professionals in interprofessions (Int21/37/66). For other crops, no effective organization from input supply to processing and commercialization exists so far (Int21). According to WFP, the only well-organized value chain is still cotton (République du Bénin, 2014, p. 65). Reasons why some value chains begin to emerge are the profit expected by the entities involved and the support provided by external actors.

Impacts

Changes brought along within research, production and processing since the introduction of value chains are so far considered insufficient and inconsistent (Int2); they do not follow the diversification strategy but concentrate only on a few crops (besides cotton mainly rice, cashew, shea) and are often driven by international partners rather than the ministry or SONAPRA (Int68/69). Furthermore, the support is liable to radical changes in approach or to delays in implementation, impairing planning security. Producers are becoming reluctant to engage in activities promoted by SONAPRA after having experienced failures of the latter's' engagement and heavy losses due to non-commercialization of their yield – as happened with rice between 2013 and 2016 (Int2/36/44/54).

As a result of government intervention, the provision of inputs for diverse crops by private actors is impeded. This negatively affects productivity as well as the development of processing and marketing services for agricultural products. These services around agricultural production would, however, constitute important aspects of a professionalized agricultural sector.

Experts doubt whether an inter-branch organization up to the national level is the most efficient set-up for all sub-sectors, due to the experience with AIC and due to different potentials for value addition and commercialization. Mistrust based on negative experience and the lack of perceived advantages can constitute obstacles to a further organization into dialogue platforms or interprofessions (Int4/44).

Summary

The weak development of value chains negatively affects the provision of inputs and thus also the productivity of agriculture. It further impedes the addition of value to primary production and an efficient commercialization of processed products.

As a result, the potential benefits that could be obtained from a professional, market-oriented, organized small scale farmer production are not fully exploited. The limited benefits from agricultural production contribute to the limited interest rural young people generally show for agriculture. The lack of dynamics in value chain development also causes the limited employment opportunities in service provision around the agricultural sector.

In general, **trends in the economic dimension are contributing to unsustainable and exclusive rural transformation**. Persistently high rural poverty rates and high food insecurity drive people temporarily or permanently into precarious labour, often in urban centres. This contributes to changes in the social structure such as the weakening of extended social safety nets; it further increases pressure on social services and infrastructure in expanding urban regions; and it disproportionally affects poorer segments of the population and young people. Main reasons for that are:

- Insufficient creation of non-agricultural employment;
- Insufficient dynamics for a true and sustained crop diversification and professionalization of the agricultural sector;
- Continued low productivity of agricultural production;
- Increased pressure on natural resources, decreasing soil fertility and water quality;
- R&D is not sufficiently oriented towards the needs of farmers impacted by climate change;
- Extension services continue to lack capacities to promote diversified, professional agriculture despite the reinforcement they received over the past decade;
- Value chains apart from cotton are still insufficiently developed – input supply and commercialization continue to pose problems to producers;
- Financial services are still insufficiently available for farmers.

3.2 Institutional dynamics and patterns of governance – general trends

The capacities and capabilities of national and local governments are of uttermost importance for inclusive and sustainable rural transformation. Processes of governance, defined in the workshop as "*the action and manner to govern on all levels, i.e. the degree of transparency, of participation in decision making, accountability etc*." decide on the inclusiveness of access to power or resources, and on the time horizon within which strategies and policies are developed, formulated, implemented and monitored. While all policies and their implementation are important aspects of governance, affecting rural transformation, the ongoing decentralization process, agricultural policy and the reform of the land tenure system stand out as being of particular relevance to rural livelihoods and are discussed in the following sub-chapters.

3.2.1 The process of decentralization and the capacities of local governments

Decentralization has a direct influence on important conditions for agricultural productivity, the natural resource management, and other sectors. Well organized and managed municipalities are important players for an inclusive and sustainable handling of rural transition processes, and successful decentralization is able to create ownership due to greater involvement of the population – which is of particular importance in the realm of natural resources management.

Trends

Main trends concerning decentralization are:

- A decentralization process was launched in 1990, but has only been partly implemented;
- Participatory approaches have been formally implemented to a large extent but continue to lack functionality and human resources;
- Coordination between central government structures and local actors continues to be weak and causes flawed planning and mismanagement of funds;
- Financial decentralization and transfer of budgets has only partly taken place, which continues to hamper the autonomy of municipalities and their capacities to implement plans;
- Governmental institutions in municipalities continue to have insufficient control to stop illegal exploitation on the ground level. They have neither trained staff nor the financial means to assist farmers in combatting soil erosion or identifying measures adapted to increased climate variability (cf. 3.4).

Before 1989, Beninese state structures were characterized by highly centralized governance. Decisions on public matters and public policies were taken top-down. The management on a community level was directed and controlled by the central state, first of all through the sub-prefectures receiving instructions from the central government and passing them on to the lower levels of governance (Int25/46).

1990 was the year of a fundamental turn: the new constitution clearly strengthened local self-government. The process continued with a legal framework for territorial and administrative reforms around the turn of the millennium. However, the corresponding legislation could not be established until 2003. Donor support was and still is essential to get the decentralization process finally started, especially Germany's GTZ (now GIZ) and the World Bank are playing a key role (Knoema, 2016; Okanla, 2013). Recently, the European Union pushed the institutional development of the ANCB (*Association Nationale des Communes du Bénin*) to foster the process of decentralization and now expects tangible results (Int71). When the partners withdraw, the municipalities should be able to continue with their own resources and without any help by the international cooperation (Int27). But communal leaders still complain that the central state has too much power, especially when it comes to land acquisitions and land rights, which should be part of the local government authority (Int27) (cf. 3.2.3).

As a result of the formal decentralization process on legislative level, municipal governments were endowed with legal personality and financial autonomy (UN-Habitat, 2008). Important competencies for municipal planning and the management of financial resources have (in theory) been transferred to the municipalities. However, commitment to transfer funds to municipal authorities were not followed up by action, the formal decisions have not been implemented:

Research findings in the study regions demonstrate that insufficient financial resources and poor professional capacities of staff are the main obstacles on the local government level. The central state is reluctant to transfer the budget to the municipalities in order to prevent losing power and

control. The funds are not transferred entirely and in time to the communities. The FADeC (*Fonds d'Appui au Développement des Communes*), a community development fund established in 2008, composed of a state grant and contributions from technical and financial partners, has also not been completely disbursed to the municipalities. From the perspective of local governments, the central government still owes money for the last few years (Int27). All in all, less than 3% of the national budget is dedicated to the municipalities (Int2/27).[19]

Enhanced participation of the population

In the formal decentralization process, two discussion and decision-making forums were created. Firstly, there is the municipal council, elected by the population. Decision-making is done by vote and the decisions are acknowledged by governmental structures. Secondly, there is a consultation forum (*Cadre de concertation*) with representatives from different sectors to solve one-off problems. They meet to make suggestions, but the municipal council is not bound by its proposals (Int13).

The elaboration of the municipal development plans is also based on a participatory approach. In order to involve the grassroots level, the population expresses its needs on the district level and the district chief reports them to the municipal council. Based on the results, an annual working plan is developed which serves as a logbook for all the activities of the municipality each year (Int46). However, the lack of financing often hinders the full implementation of these plans.

One inclusive approach that is implemented in some municipalities is the co-management of natural resources (water, forest) between governmental institutions and the population (cf. 3.4.1). There are so far no sustainable results; this is attributed by respondents to the poverty among the local residents and, as a consequence, an ongoing exploitation of natural resources (Int20). In all these participatory procedures, traditional chiefs are little implicated and gradually lose their authority (Int42).

Efforts to mobilize resources through local taxes have not been sufficient. The local development taxes have decreased, because institutional structures on the local governance level are not well established, tax collection is ineffective (Int27), and also because parts of the population refuse to pay taxes (Int33).

Besides funding, the limited professional skills of the communal technical staff and the capacities for active participation of large segments of the population represent challenges. A high rate of illiteracy and a limited understanding of French, the official first language, technically exclude relevant segments of the population from participation (Int25). Staff of municipal structures argue that low salaries, limited career opportunities and unattractive working conditions in often

19 Incomplete decentralization, especially concerning the transfer of financial authority to local government units is not specific to Benin alone but is an issue of constant debate in many decentralized countries.

run down, badly equipped, non-electrified municipal office buildings are disincentives for well qualified young people to enrol in local government jobs – which are furthermore often given according to political affiliations. If there is a choice, a well-qualified person would thus rather choose a job in the private sector in a more urban setting (Int2/53).

Due to an alleged lack of conviction and political will, some ministries do not sufficiently devolve administrative and legislative competencies to the democratically legitimate local authorities (Int71). The administration at the regional level is still subservient to the ministers and does not pay attention to work done by mayors and council members (Okanla, 2013). Also, responsibilities between governmental institutions are sometimes not well defined: for example, the Ministry of Agriculture and the Ministry of the Environment both intervene in the field of natural resources without coordinating sufficiently (Int1). Furthermore, there are misunderstandings and disputes about responsibilities between the Ministry of Environment and the municipalities concerning the access to natural resources (Int39).

The degree of decentralization is legally the same all over the country, but the efficiency of the local administration in the study regions differs from municipality to municipality. The mayor plays a key role in the decentralization process and, if supported by qualified administrative staff, can give the development efforts a new direction (Int33). This may partly explain the different states of development progress of the municipalities in the study regions: Officials working for the wealthy municipality of Parakou say that they had become largely autonomous in the decision-making processes and the execution of their tasks over the past 15 years (Int13). In contrast, in another municipality in Ouémé-Plateau, an official complains that everything is politicized, even the development: if a municipality is not in accordance with central government, it might not benefit from programmes or projects (Int33).

Decentralization in the educational and water sectors

In the education sector, municipalities are responsible for the construction and equipment of schools whereas the Ministry of Primary Education employs teachers and distributes them to the communities – often without a coordinated planning process of both entities. As a result, schools are built but receive an insufficient number of teachers (Int2/18/41).

A rather positive example for a partly successful decentralization process can be found in the water sector. In the past, the central state was in charge of the provision of water including the strategy development, planning and management, which did not work well. From 2007 on, the water management was gradually decentralized. The municipalities are now owners of the infrastructure and have a service and advisory role. They make contracts with private companies and feel responsible that people pay for water. But municipalities still have problems to collect the fees because parts of the population do not pay (Int69).

Impacts

Impacts of decentralization are so far only partly evident as the process is inconsistent and respondents were divided in their opinion:

Some respondents highlight the positive aspect that decision-making and its application takes place on the same institutional level for the first time, e.g. direct negotiations between municipality and companies for construction works (Int33). Central governmental planning is replaced in some areas by a multi-stakeholder process including local government representatives, companies, NGOs, and the population (WS-B/Int1).

In contrast, international donors heavily criticize that the Beninese government is not convinced of the decentralization approach and that the whole decentralization process is donor driven (Int71). Due to this alleged political unwillingness, the transfer of competences is lagging behind and or is incomplete. Local structures are frustrated as they do not get the tools to implement what they planned and the population loses trust in participatory and decentral approaches.

Despite its potential, the ongoing decentralization has not yet had major and decisive impacts on rural transformation as it has not yet equipped municipalities with the tools and means to better manage their affairs.

Summary

The decentralization process in rural Benin is obstructed by a central state and a national government which delegate functions, devolves responsibilities and controls and decentralizes budgets to an incomplete extent. After more than 10 years, the decentralization process is still ongoing, and first results are visible. A legal framework exists and competencies are partly deconcentrated. Municipalities are largely autonomous in their decision making. However, financing still depends on the goodwill of the central government. The progress made in the decentralization process also differs from sector to sector and between municipalities.

The decentralization process has the potential to contribute to more political participation of the lower administrative levels and of the population, who can participate in decisions concerning their immediate surroundings. It is, however, currently not implemented in a way so as to serve as a tool for more social inclusion nor does it lead to a more thorough and sustainable management of natural resources.

3.2.2 Plans and implementation: Agricultural policy[20]

Agricultural policy is very influential on rural transformation as it directly affects many other factors determining changes of rural livelihood conditions. It sets a framework for agricultural production (cf. 3.1.2, 3.1.3), contributes to the openness of markets and the competitiveness of local production, and can influence the development of financial services for the agricultural sector. Land tenure and allocation is influenced by agricultural policy, and so is the orientation and intensity of research and development. With its potential to promote production in certain regions, agricultural policy influence peoples' decisions to migrate, because economic options are one factor defining the attractiveness of rural areas (WS-G). It further affects the exploitation of natural resources, as agriculture is highly dependent on ecosystem services, and the form of agricultural management directly impacts on natural resources and vice versa – land and water are fundamental means of production, and agriculture directly competes for space with expanding villages and cities but also with decreasing wetlands and forests (cf. 3.4.1).

The agricultural sector continues to generate 80% of Benin's export income and about 40% the population is engaged in agricultural activities (Accrombessy, 2013). After the services sector, it remains the second pillar of the Beninese economy (cf. 3.1) – agricultural policy therefore not only affects the people who earn their living with it but the economy as a whole and thus the livelihoods of more than the rural population.

This sub-chapter discusses aspects of the current agricultural policy which were identified as crucial by workshop participants and workshop respondents, namely:

- the state of implementation of the strategy for the relaunch of the agricultural sector (PSRSA) which is supposed to frame changes and developments in agriculture;
- recent developments in extension services which aim at disseminating strategic visions on the ground;
- the state of research and development as a crucial factor for innovation and adaptation.[21]

Agricultural spending and the strategy to relaunch the sector (PSRSA) [22]

In the course of the regional integration process[23], Benin committed itself to reaching the threshold of 10% agricultural expenditure of its total government budget and to achieve an an-

20 The elections in Benin in March 2016 have led to changes in the government approach to agricultural policy. The new President is a (former) major private entrepreneur in the cotton sector, and a re-privatization of the cotton sector is expected. A government plan for a new approach to agriculture has been drafted ("*Programme agricole du Nouveau Depart*") – parallel to the review of the strategic plan. How these two plans will be harmonized and operationalized will be seen in the coming years. These documents have so far not been approved and disseminated, so it is too early for an analysis within this research. (Int107)

21 Trends and the impacts of trade policies are discussed in a separate paper to be published by SLE; land tenure is discussed in 3.2.3.

22 A broad review of PSRSA was conducted by MAEP until October 2016, mainly based on a literature review. The document was not yet officially available when this report was drafted, but preliminary versions indicate results similar to the present research: a hesitant and incoherent implementation of the plan with small progress in some strategic axes. The report is expected to result in an updated strategy paper to orient agricultural policy for the years to come. (WS-R1)

23 Benin is part of the Comprehensive Africa Agriculture Development Programme (CAADP) of the African Union (AU) in the New Partnership for Africa's Development (NEPAD)

nual agricultural growth of 6% (Figure 13). However, since 1995, government expenditures for agriculture have decreased and remained at 6% of the budget in 2013, thus well below the NEPAD threshold. Similarly, the annual agricultural growth rate between 2003 and 2012 fluctuated around an average of 3% with a decreasing trend (Figure 14).

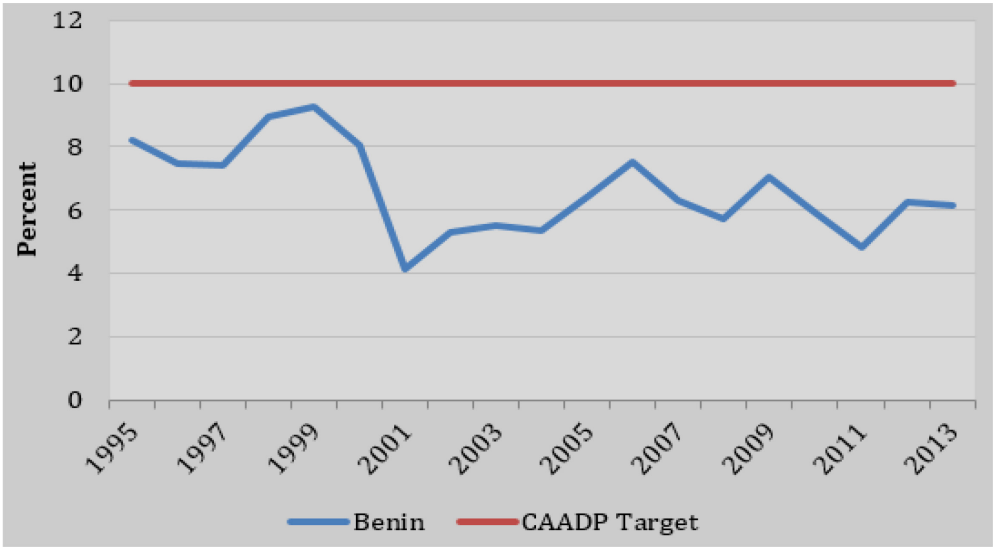

Figure 13: Annual public agriculture expenditure share in total public expenditure compared to CAADP 10 percent target (1995 - 2013)

Source: Regional Strategic Analysis and Knowledge Support System (2015)

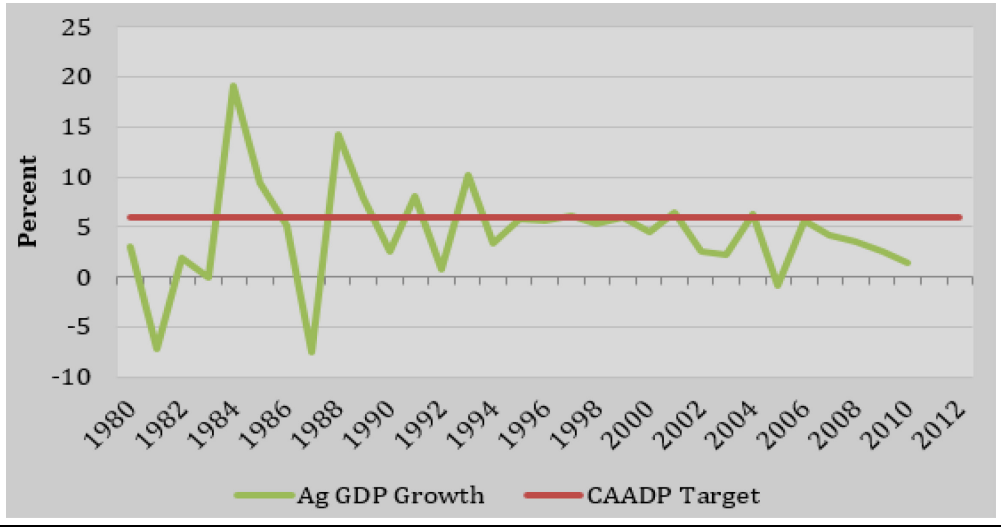

Figure 14: Annual Agricultural GDP Growth Rates compared to CAADP 6 Percent Target (1980 - 2012)

Source: Regional Strategic Analysis and Knowledge Support System (2015)

Given the importance of agriculture, some actors call for a more substantial part of the national budget (30-40% was mentioned in interviews) to be invested in rural development or provided to support to agriculture and food production (Int44/73, WS-L). Without an adequate budget, the ambitious objectives of the national agricultural strategy document PSRSA are difficult to achieve.

The PSRSA, which was elaborated with participation of farmers' organizations, amongst others (Int50), and adopted in 2011 with 2015 as time horizon, has as overall objective to improve the performance of Benin's agricultural sector and thereby contribute to food self-sufficiency, social-economic development and poverty reduction. There are further two subordinated objectives, namely a) to assure an efficient production and a consistent management directly contributing to agricultural growth, food and nutrition security and b) to assure competitiveness and market access due to the promotion of certain agricultural branches (see textbox).

Strategic axis for agricultural reinvigoration according to the PSRSA

- Improved availability and accessibility of quality seeds
- Improved accessibility of inputs
- Adapted and accessible mechanization for agricultural activities
- Adapted and accessible financial services
- Improved access to professional knowledge and technological innovation
- Development and operationalization of agricultural amenities
- Secured and well-managed access to land titles
- Facilitated market access
- Professionalized small scale (family) farms and promotion of big exploitations

Source: Ministère de l'Agriculture, de l'Elevage et de la Pêche (2011, p. 25)

As a key initiative to relaunch agricultural production and to support a thriving, market oriented and diversified sector, the government of Benin declared its support to diversify agricultural value chains and promote high potential crops adapted to the different climate and soil types prevalent in the country. According to the strategy document, agricultural policy shall focus on (so far underdeveloped) value chains other than cotton. By promoting diverse products for export (such as pineapple, cashew), as well as staple crops for food security (e.g. rice, cassava, corn), the dependency on a single crop shall be reduced. In addition, the livestock (poultry, grasscutter, eggs and dairy) as well as aquatic value chains (crabs, fish) shall be promoted; all crops or cultures in which the ministry sees comparative advantages and which have the potential to boost processing and other accompanying services along the chain (Ministère de l'Agriculture, de l'Elevage et de la Pêche, 2011, p. 22). To support this approach, relevant actors of the VCs are or shall be organized in platforms, so called interprofessions, from local to national level (cf. 3.1.3). The strategy further previews, amongst other support measures, establishing a control unit to monitor trade and business standards and to provide diversified access to agricultural credit.

Cotton production by small scale farmers – an instrument for social inclusion?

The importance of the cotton sector for the well-being of many small-scale farmers was highlighted as an argument for state support and control: farmers gain a secure income thanks to fixed prices and obtain inputs thanks to government subsidies for cotton-related fertilizers and pesticides. Government involvement in the production and commercialization of cotton is thus supposed to ensure equity in the distribution of benefits from this export sector (Int68).

This explanation however only holds as long as the intervention results in a functioning cotton sector and a fair redistribution of benefits. But according to testimonies in the field, the cotton sector has become highly intransparent, input subsidies favour input suppliers and not producers, crops are lost in the fields because of deficits in transport and processing, and many farmers have started to shift to other crops (Int1/4/11/24/67). In addition, observers expect a budget deficit caused by fixed prices for raw cotton while world market prices are dropping (Int75/78).

Trends

Agricultural policy continues to be dominated by weak government support despite the formulation of a strategy calling for important changes. Main aspects are:

- Continuous insufficient budgetary support for the agricultural sector despite contrary commitments;
- No substantial changes on the ground despite an agricultural policy committed to diversification and professionalization;
- No massive push for crop diversification, nor for an end to the predominant governmental support for cotton;
- Some timid changes towards diversification, organization of small scale producers are noted.

Respondents designate issues of governance as root causes for the reported lack of implementation of the PSRSA: the low standing of the ministry of agriculture in the hierarchy of ministries (Int67), the fact that political affiliations and election promises are prioritized over implementing the adopted strategy (Int61, WS-C), or the fact that direct economic interests of decision makers in benefits from cotton export prevent serious efforts to support diversified and food security oriented production (Int 67/71/73). Further and more direct causes for the incomplete implementation are a noted lack of capacities within the extension services to adapt to the new approaches (see below), the lack of finances for R&D, as well as the lack of interaction between R&D and extension services.

Despite the insufficiency of efforts to support diversification, producers are slowly expanding their diversified cropping patterns (Int11/24/64/68). According to respondents, this is partly a response to the current cotton crisis and partly due to support from international organizations for specific crops such as soy, cashew or shea (Int69). Other reasons are changing consumption patterns of consumers, which promotes the expansion of aquaculture, livestock, vegetable, and

corn (Int43/49/54). Risk reduction and a spread of potential benefits over the growing seasons are main objectives of these changes (In54) (cf. 3.1.2).

Examples for incomplete implementation of PSRSA

A fund for agricultural credit is being set up (FNDA, *Fonds National de Développement Agricole*), but international partners who agreed to contribute relevantly are not willing to support it financially given the opaque management structures put in place so far (Int67/71/73 – cf. 3.1.1).

A similar assessment was given by one representative of international cooperation concerning the agency for food safety ABSSA (*Agence Béninoise pour la Sécurité Sanitaire des Aliments*), for which a laboratory was installed with support of international partners, but whose management was organized without clarification of responsibilities and roles, posts were distributed on political grounds rather than on competences, and power struggles within ministerial institutions resulted in a dysfunctional structure (Int67).

Impacts

While many actors within the sector assess the PSRSA strategy document as very well formulated and well meant (Int61/67/69) they also state it is only partly implemented, if at all (Int11/61/70, WS-E). According to testimonies in the field and despite some improvements, efforts do not live up to the discourse, neither in terms of capacity development/advisory services, research and development (R&D), mechanization and other means of production (decentral irrigation, private input supply, access to finance), nor in terms of diversification. The focus of agricultural policy and support services is still on cotton (Int4/11/24/68/69/71) (3.1.3). Activities to support improved production (R&D, extension services, natural resource management) and processing are insufficient in most agricultural sub-sectors and said not to be adapted to the real needs of producers (see below) (Int2/68).

No overall monitoring and evaluation (M&E) plan was previewed for the implementation of the strategy paper, and no specific indicators have been developed to assess its progress and impacts (Int68). Information on (lack of) progress of implementation, results and impact are thus rather a collection of individual observations – which taken together point to the assessment presented in footnote 22.

Extension services

Extension services accompany farmers in their production practices (e.g. farming as a business), disseminate best practices and innovation (e.g. climate adaptation), promote specific crops or practices, and serve as a link between the ministry, research institutions and farmers.

Trends

Support to extension services – and thus their capacities and performance – has been varying in Benin since the 1990s. A recent strengthening of extension services has been noted, albeit with insufficient effects. Recent trends can be summarized as follows:

- Strengthening of extension services through employment of advisors and increased material and financial means since 2000, countering massive cuts in the 1990s;
- Continued (perceived) insufficiencies in terms of staff, capacities of advisors and material and financial means to provide quality services and address issues in the field connected to innovation, diversification, farming as a business, processing, and access to finance;
- Continued focus of advisory services on cotton.

Since the 1980s, advisory and extension staff levels were systematically reduced, until in 2000 the government started to realize that a shortage of qualified extension staff had the negative consequence that well organized cooperatives dissolved for lack of support (Deniel, 2007, p. 12; Int50).

The decentralization process (cf. 3.2.1) has theoretically provided the six regional centres for rural development CARDER (*Centre d'action pour le développement rural*) on a municipal level with the means to plan, to decide on and to coordinate regional actions in agriculture for rural development (Int1). According to PSRSA, extension services are to be further strengthened and better linked with agricultural research institutions. However, they were neither provided with real power to enforce coordination between actors nor with the budgetary independence to implement their plans (Int1/67). Respondents claimed that CARDER's performance was evaluated only with respect to cotton production and that therefore more attention was paid to cotton than to any other crop (Int67/73).

Despite efforts to strengthen extension services by employing new advisors and increasing material and financial means in the first decade of the new millennium, the ratio of advisors to farmers as well as the means of mobility they have at their disposal are still considered insufficient for a proper outreach of quality services (Int54/73). Salaries of extension staff were said to have been paid with much delay, forcing staff to engage in other activities to make ends meet, thus affecting their performance, a situation which has apparently improved (Int14).

In theory, at the beginning of each cultivation period, interdisciplinary teams are supposed to assess the year's challenges in the field and respond to farmers needs with the main objective to increase revenues from agriculture (Int3). In reality, this is reported to happen only very rarely (Int73). Since no specific typology of producers is used by the ministry, messages promoted by CARDER run the danger of being too unspecific for the respective producer type (Int71).

Interviewed farmers and researchers insisted that extension staff need further capacity development in order to provide quality training and advice, e.g. on innovative techniques for various crops (including vegetable gardens), on how to use improved seeds, on how to plan crop production as a business with a market oriented approach, or on processing (Int14/64). Furthermore,

acute problems like adaptation to climate irregularities are not covered, and technology for processing promoted by CARDER is usually based on imported and costly acquisitions (Int36).

Impacts

Whereas government extension services have been strengthened with staff and resources over the past decade, results are broadly evaluated as insufficient for a real professionalization of the sector, especially for promoting diversified, market oriented agricultural entrepreneurship and transformation.

Research and development (R&D)

R&D induces and follows up on changes and innovations (WS-C). R&D is one way to increase productivity and to adapt to climate deregulation. It is heavily dependent on the orientation of agricultural policy, as most of its budget is provided by government (WS-G). Consequently, the strengthening of research institutions is centrally mentioned in PSRSA.

The main players for R&D are the national agricultural research institute INRAB (*Institut National des Recherches Agricoles du Benin*) as well as universities. INRAB has six centres of agricultural research all over the country to work on regional and on annual and perennial cropping systems, and/or processing in the appropriate geo-climatic conditions (Int21/42/52/64). The objectives are to develop and improve the genetic stock of plants in terms of productivity and/or resilience to climate deregulation and pests and diseases (Int21/52) or adapted technologies for less labour intensive, more efficient processing (Int64). Training of trainers by INRAB staff does take place, and INRAB also prepares guidelines for specific agricultural practices in the field (Int21/52/64).

Multiple universities do research in various parts of the country, and some NGOs undertake applied research on a small scale, with a limited outreach but with close links to producers (WS-A). However, these research efforts are rarely coordinated, no network is in place for information exchange between these different actors, and potential synergies are lost. In theory, CARDER and other extension services (often NGO-driven structures) disseminate the results and recommendations elaborated by INRAB.

Trends

No strong trends are visible in the domain of research and development. However, some changes are apparent and some challenges continue to limit positive impacts:

- Despite the affirmations described above, R&D still does not to bring the results that would be needed in the field and which could contribute to more sustainable and dynamic agricultural production;
- Challenges continue to be posed by a lack of coordination between research institutes, extension services and farmers and between research institutes;
- Restricted public funding for R&D increasingly focuses researchers on responding to needs and demands of financing institutions rather than to the needs of farmers.

The results of R&D often seem poorly adapted and applied. R&D is not able to find appropriate solutions, partly because of lack of exchange with field staff and thus incomplete knowledge of problems arising in the field (Int14/36/48, WS-E), but also because of insufficient financial and human resources to work on solutions or to disseminate findings (Int1, WS-E). The effects of the training of trainers are considered insufficient – in addition to the limited resources, the knowhow of those involved does not focus on the professionalization of small-scale farmer production.

The diffusion of R&D results down to producers is further impeded by resource constraints of extension services, despite all improvements noted since 2012 (Int14/36/48/50). Resource constraints for CARDER also contribute to a weak consideration of producers' needs – research topics are more influenced by those who fund them (mainly international institutions) than by issues on the ground.

Public funds for R&D are increasingly restricted to research on cotton (Int3/21/64). In consequence, research institutes have to search for funding and become more dependent on the orientations and interests of funding institutions, often international organizations (In64). Some also see the need to enter into business such as selling improved seeds or the fruits (as in the case of oil palm) in order to become more financially autonomous (Int52).

Impacts

R&D in its current state yields only limited positive effects for the agricultural sector as it continues to face a number of challenges as noted above.

However, respondents do cite some positive results of R&D, e.g. improved seeds and seedlings (cotton, oil palm), meat and dairy production or low cost processing (Int4/21/52/58/61/64). New media and broader access to TV, radio and/or the internet (cf. 3.1.1) have increased the interest of the rural population in innovation and contributed to the dissemination of innovation. However, aversion of farmers towards the risks of innovative but unproven techniques or varieties as well as a lack of investment capital to adopt new technologies curtail this curiosity (Int64). Some techniques such as applying manure to increase soil fertility or integrated pest management are (partly) rejected as they are more labour intensive than the application of chemical fertilizer or pesticides – which may be expensive if they have to be purchased and are often not available for small scale farmers, but which people have learned to expect as a supply from government (Int38).

In conclusion, R&D structures have a good potential to live up to expectations –structures all over the country with long lasting institutional experience, qualified staff – but lack the financial means as well as the proper links in the field to investigate and find solutions to the production concerns of farmers. Structures and channels for the dissemination of results are previewed but cannot, for the time being, meet the expectations. R&D thus represents an underused potential for the promotion of agriculture.

Summary

Agriculture and agricultural policy frameworks are highly influential on processes of rural transformation as they affect the economic, social and environmental conditions of people's lives.

The incomplete implementation of the agricultural strategy as the main feature of the Beninese agricultural policy affects rural livelihoods as well as the natural resource base: Cotton production and agricultural production in general with insufficient input supply or other sources of soil nutrients leads to soil mining and environmental degradation; diversification and professionalization in order to strengthen the farmers' income is hampered; low productivity is not tackled consequently, neither R&D nor extension services have the capacities and means to adequately support farmers in their production; low productivity coupled with the need to increase production leads to encroachment on formerly uncultivated land, thus further affecting the already fragile environment and ecosystem services.

Some (often poor) producers are tempted to sell their land only to find themselves without means to gain a living and forced to move to urban centres to join the throngs of city dwellers living in precarious conditions (cf. 3.2.3).

Thus, rural out-migration is an effect of agricultural policy, as for the time being it does not contribute to create sustainable and socially inclusive economic opportunities in many regions of the country. The policy is an active driver of exclusive and unsustainable rural transformation.

3.2.3 The changing regulations of land use and land tenure

Secure land property and land use regulations are crucial for long term land management because many investments in sustainable management practices only pay off over time. Land use regulations and property rights can be powerful inclusive institutions (in the sense of Acemoglu & Robinson (2012)) as highlighted by the constantly rising value of land and interest in land in Benin. This trend is accompanied by a plurality of land rights, which is, in combination, putting at risk the livelihoods of a significant part of small scale farmers, especially the more vulnerable. The case of Benin shows that even small scale land acquisitions can in sum build an exclusive and risky trend especially when food security is at stake.

Customary land tenure in Benin

Despite privatization under French rule, Benin's land tenure system is still partly based on customary rights which are most prominent in rural areas. In Benin, many people think that the land belongs to the person who arrives first. Land has usually been inherited through male lineage and is recognized by ceremonial acts rather than written documentation. The succession of land is often informal (Int31). If somebody dies there is often no testament to settle the

ownership of the land (Int5). Traditionally, a land title is not mandatory to prove that somebody is the owner (Int11). Collective management also exists in some areas (WS-J), administered by village committees (Int73). This situation of pluralistic land rights can generate insecurity and conflict.

The customary land tenure systems can favour access to land through social status or group membership, allowing short-term leasing contracts or permitting the sharing of risks between land users and those who consider themselves the owners. These traditional systems of land ownership cannot be considered inclusive per se. They usually favour certain clans as well as rich and powerful actors and on the other hand discriminate against marginalized groups like women or younger men (Aregheore, 2009).

Trends

Trends are difficult to generalize as they strongly depend on the specific situation in the two study regions and are closely connected to demographic dynamics (cf. 3.3.1). They encompass:

- Exclusive and unsustainable land regulations are addressed through the new land code (2013);
- Increased land pressure due to urban sprawl and population growth; particularly in the south;
- Continued availability of land in less densely populated areas as in the centre and north;
- Peri-urban regions generally face increasing population influx and sprawl into formerly rural regions.

In 2013, the Beninese parliament adopted a new land code. One key element is that the soil has to be managed in a rational and sustainable way (Article 315). The new land code foresees that land which is not used will be put at the disposal of potential users. The purchase of more than 2 hectares has to be approved by the municipal council. Sales of more than 20 hectares are under the supervision of the Ministry of Agriculture. Foreigners cannot buy land, but they are allowed to rent it (Int44). The second general principle is that all the Beninese have an equal calling to access to natural resources in general and to agricultural land in particular, without discrimination on the basis of sex or social origin (Article 316). The new land code attaches equal weight to the customary law and the modern law. It recognizes officially the customary possession of local populations and provides the possibility to regroup individual ownerships in a collective property, such as that of a family or community (Article 142). This can be a way to curb or prevent the commercialization of land or the urban sprawl. An advantage is that women can secure their land right indirectly by the recognition of a family or collective property (Dutilleul, 2013).

Until 2010 very little effort was devoted to the establishment of genuine land laws and regulations in general, and land tenure policies in particular, despite the obvious need to change the regulations of land property and land use. In consequence, the most necessary functions and facilities like land registries, taxation and others were not sufficiently installed (Kakai, 2012, pp. 3–4) and are still considered insufficient (Int5/73).

A brief review of the rural land tenure

In 1993, Benin's government laid the foundation of a reviewed statutory land tenure system by introducing the rural landholding plan (PFR/*Plan Foncier Rural*) as a pilot project to address the problems associated with customary systems. In addition, several European donors together with the U.S. Millennium Challenge Corporation/Account (MCC/A) funded the expansion of the PFR and facilitated about 400 villages to develop their own implementation strategies regarding documentation of customary rights and land sales or listing of landholders and tenancy contracts (USAID, 2013). No institutional support was provided after the end of the project in a follow-up stage. Thus many municipalities do not implement the PFR anymore and land tenure has once again followed traditional rules (Int73).

The Rural Land Act was developed by Benin's Government in 2007 to strengthen the right status of customary land by converting it into private properties. Since then a project, financed by the German financial cooperation (KfW) and implemented by the Ministry of Agriculture, aims to implement a cadastral system, currently in 105 villages. In each village, a committee of 2-3 people manages the cadastral system. Surveyors, social intermediaries and residents cooperate to fix the borders and solve conflicts at village level. Every change should be registered in a computerized system on municipal level. The overall objective is the integration of all areas in accordance with the legal framework (Int73). Therefore, the Rural Land Act promotes legal security regarding land deals through the obligation to conclude a contract for any kind of transaction.

In the further course of the reform process, an actual land policy was elaborated and a white book "*Livre blanc de politique foncière – décret portant Déclaration de politique foncière et domaniale au Bénin*" was approved by the Government in 2010 (IS Academy on Land Governance for Equitable and Sustainable Development, 2012).

In order to strengthen the application of laws and regulations through improved governance, the national land agency ANDF (*Agence Nationale du Domaine et du Foncier*) was created in 2016. It is under the supervision of the Ministry of Finance and Economic Affairs and branches will be established on the regional and municipality levels. All activities of international development agencies have to be in line with ANDF procedures (Int73). At present it is not possible to determine how effective and transparent the work of ANDF is.

As in most departments of southern Benin, the economic centre of the country, land pressure in Ouémé-Plateau is particularly high. An increasing proportion of land is used to build houses and infrastructure, making land more expensive and pushing agriculture out of towns and their surroundings (Int65). Even outside of towns, land availability is a limiting factor due to population growth and expanding villages. In the department of Borgou, where land is still available, the pressure has increased considerably due to migratory influx and high population growth. Ongoing soil degradation (cf. 3.4.1) further reduces the availability of quality land for cultivation.

In Borgou's capital Parakou and parts of its neighbouring municipalities with good traffic connections, trends are similar to those in the south. The growing city creates land insecurity even in the outer districts. Most of the small-scale farmers do not hold formal land titles and often feel compelled to sell off their land cheaply before there are conflicts and divisions of land (Int24). Entrepreneurs, government officials and others are buying up large areas in the region and secure it with land titles (Int30).

The findings of this study support a clear tendency of increasing land pressure in peri-urban areas and easily accessible regions in rural areas. One of the main reasons seems to be increased land speculation over recent years. Poorer small scale farmers in need of immediate cash sell their land (and thus sacrifice their major source of income for short-term benefits). It is then purchased by urban middle class people as an asset or saving. The land often lies fallow because the new owners have no interest in or knowledge of agriculture (Int31).

Impacts

Current dynamics have increased land pressure in particular in densely populated regions and in peri-urban areas. Land is becoming more expensive, and especially poorer land users are increasingly tempted to sell the land they cultivate in order to gain short term profits. This results in the transformation of formerly agricultural land into constructed land or idle land – and it forces those who sold their land to move into towns in search of income opportunities (Int65). In the absence of economic dynamics creating income generating options beyond the agricultural sector, the reduction of agricultural land has negative consequences on the economic opportunities of the population, and especially the poorer segments. Less available agricultural land forces farmers to encroach on unused land, pastures, and forest areas, where these still exist. These dynamics limit economic options and increase the pressure on the remaining pasture and forest resources.

The following paragraph considers possible impacts of the land tenure reforms:

The land code is directed against speculation and should improve the access to land for farmers, especially small scale farmers. It is a reaction to the fact that more and more urban middle class people are purchasing land without making use of it (Int31). While the land code is generally appraised in interviews as "inclusive" and as having sufficient safeguards against speculation and unintended exclusive effects, some respondents argue that people still find ways to circumvent the law, e.g. by breaking up their property and selling the pieces (WS-E, Int33/41/61).

Despite all safeguards, this formalization of land ownership might exclude small scale farmers, especially women who have relied on informal agreements giving them access to a certain piece of land. In addition, complex bureaucratic procedures which last a year and are subject to (varying) fees continue to pose obstacles to obtaining land titles especially for the poorly educated rural population with a high illiteracy rate and poor (WS-E; Int5).

Summary

While no uniform trend of land availability can be described for the entire country, land is becoming continuously less available in densely populated and peri-urban areas. Agricultural land is becoming more valuable, and formerly rural areas are being transformed into peri-urban and urban areas.

Numerous initiatives have been undertaken over the last two decades to improve land security through better regulations. The rural land act and the new land code are important steps to harmonize customary and statutory laws and strengthen the land rights of small-scale farmers. However, the new regulations are still not fully implemented (Int33) due to the generally poor performance of Benin's government institutions. It therefore follows that only few small-scale farmers register their land.

Administrative procedures to obtain a land title are subject to costs and thus constitute a potential barrier for the most vulnerable, which means that they might exclude the rural poor. Illiteracy and poor education remain another considerable obstacle to attaining a formal land title. Due to the population growth, an effective and sustainable implementation of inclusive property rights and land regulations is more urgent than ever before.

Changes in land tenure and use influence rural transformation as they renegotiate economic opportunities and create new situations of social interaction. **The current trends are detrimental for the poorer segments of the population. In combination with population growth and a lack of non-agricultural opportunities, it also increases the pressure on natural resources and can thus be labelled unsustainable.** The Beninese government has reacted by adopting a new land code, which especially aims at hampering land speculation. Its effects need to be evaluated carefully in the future – it offers considerable potential to influence changes in a more inclusive and sustainable manner.

3.3 Social dynamics and differentiation

Social dynamics in Benin are characterized by increasing urban-rural links on the one hand, and persisting rural-urban differences in the conditions of living and production on the other. Over the past decade, poverty in Benin remained stable at around 36% despite increasing per capita GDP (World Bank, 2016) and is always higher in rural areas, at around 38% monetary poverty and 35% non-monetary poverty compared to 30 % and 23% in urban areas (Republic of Benin, 2011).

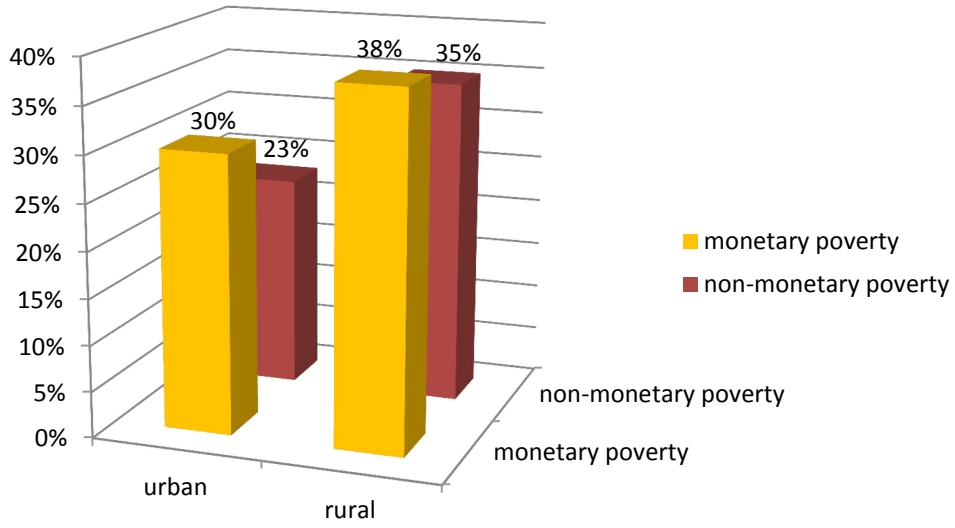

Figure 15: Monetary and non-monetary poverty in rural and urban Benin

Source: Republic of Benin (2011)

A general trend identified by workshop participants and interviewees was the increasing relevance of nuclear families compared to the historic prevalence of extended families. They attributed these changes to a stronger exchange and interdependence of rural and urban areas and to higher levels of education and the influence of media such as radio and TV. They called it "social mimicry" (WS-B, Int2/11/45). In the course of these changes, and as the Family Code from 2004[24] is further rolled out, they expect increasing gender equality.

Despite recent efforts to reduce the gap in the accessibility to social services between urban and rural regions and a slight trend towards better social infrastructure in remote regions, persisting poverty and deficient social services and infrastructure make migration from rural to urban areas a constant necessity for the poor. This chapter offers insights into migration and social services as key components of the social dimension of rural transformation in Benin.

3.3.1 Demographic dynamics: New patterns of migration and urbanization

Demographic dynamics describe both natural population growth and migratory fluxes. They influence rural transformation because the density of population is a key determinant for the pressure exerted on land, on natural resources, and on social infrastructure. Demographic dynamics can influence markets; increasing population can result in more competition for employment or in more demand for certain goods and services.

24 In the "*Code de personnes et de la famille*", the Beninese assembly attributes equal rights to men and women (civil rights, inheritance, property, participation, labour, etc.) (République du Bénin, 2004).

Trends

Benin is characterized by the following demographic trends:

- Continued strong population growth in both urban and rural areas;
- Ongoing urbanization with signs of saturation in the biggest cities and thus beginning out-migration from these urban centres;
- Increasing migration from both north and south towards the centre of Benin due to rural-rural migration;
- Increasingly multi-local livelihood patterns as a coping strategy;
- Shifting international migration patterns.

Benin's annual population growth rate remains strong, i.e. the trend of population growth is continuing. The country ranks 16 out of 235 with an annual growth of 2.75% (CIA, n.d.). Due to immigration, this number was higher in 2014 for urban areas (3.6%) than for rural areas (1.9%) (World Bank, 2016). Benin's fertility rates are declining (7.02 in 1981, 6.36 in 1995 to 4.76 in 2014), however, Benin is under the top 20 countries worldwide (CIA, n.d.).

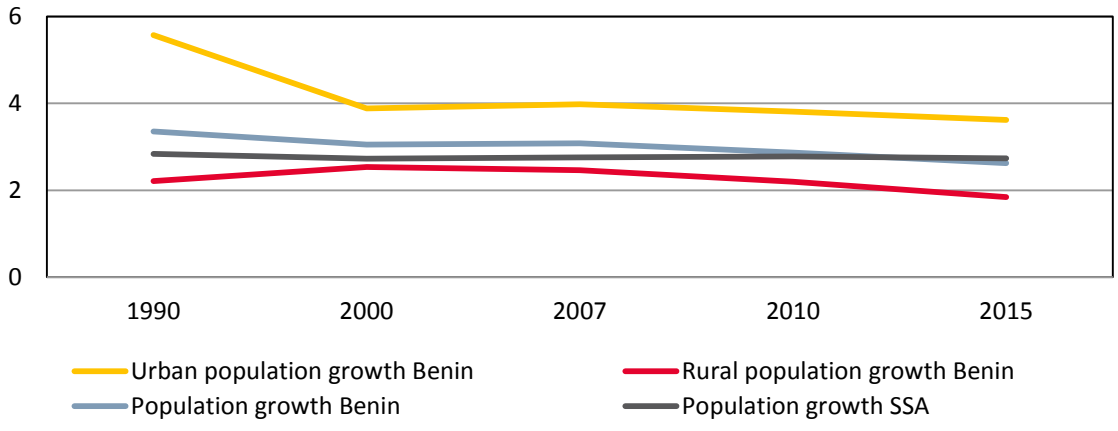

Figure 16: Population growth Benin and Sub-Saharan Africa (annual, in %), 1990 - 2015

Source: World Bank (2016)

Another important trend is urbanization. In 2014, 43.5 % of the total population lived in urban areas in comparison to 34.5% in 1990 (World Bank, 2016). The urban agglomerations in the south are the most populated areas, as is the southern part of Benin in general. The major urban areas in the South are the capital Porto-Novo, the seat of government in Cotonou and Abomey-Calavi. The main urban centre in the north is Parakou (African Economic Outlook, 2012). However, signs of saturation can be noted locally: the department of Littoral (Cotonou), saw its average growth rate drop from 3.76% between 1979 and 1992 to 0.18% between 2002 and 2013 while neighbour-

ing cities as Abomey-Calavi and Ouidah grew disproportionately into "dormitory towns" (INSAE, 2015, p. 4,8).

One major reason for the population growth in urban areas is the rural exodus towards urban agglomerations (Int4/12/13/45/ 54). Especially younger men quit the village to search for income opportunities in town (Int30/38) but there is also a more recent trend to an increased labour migration of girls to work as housemaids or nannies. As they gain experience and increase their social status, these young women have no problem finding a suitable husband when they return to the village (Int30). Consequently, temporary migration is becoming more attractive for girls and young women. Some small-scale farmers sell their land to work in the city and plan to leave for good, but a significant proportion of the labour migration is not permanent. People with low income work in the cities and sleep in the village due to the lower costs of living in rural areas (Int32). Others migrate temporarily during the dry season (Int2).

Agricultural migration from rural to other rural areas is characterized by demographic shifts to the central states Donga and Borgou. On the one hand, migrants from the south move permanently due to land scarcity or temporarily to work in the fields during the cotton season (Int27), especially when the fields in the south are flooded (Int48). On the other hand, people from the north move due to a combination of land scarcity and unfavourable climatic conditions. This applies in particular to the north-western department Atacora, where fertile agricultural land is limited (Int14). This leads to the highest demographic growth rates in the country for some districts in Borgou and Donga and to a depopulation of agriculturally unfavourable regions in the north and north-west (WS-B). New villages arise around new roads and bridges and existing villages are constantly growing (Int12).

Besides environmentally-induced motives, social structures and conflicts also impact on migration decisions (Doevenspeck, 2011, p. 61) as is shown in Figure 17. Interviewees in Borgou mentioned moving when basic infrastructures such as schools, hospitals or bridges were missing (Int19). Because land prices and demand in peri-urban areas are rising significantly, quite a number of small-scale farmers sell their land and leave the peri-urban areas in order to move to the neighbouring municipalities, where land is consequently also becoming scarce. In remote areas, land is still available (Int12), but access to infrastructures and markets is limited. Therefore people hesitate to move to these regions. Family relations proved important, as more than two-thirds (71%) of the respondents in Doevenspeck's study were related with at least one member of other migrant households in the new settlement. Two-thirds visited the home village at least once a year and supported the family at home by sending cash remittances or foodstuff (Doevenspeck, 2011, p. 63). This indicates that a good part of migration follows the logic of multi-local livelihoods (Rauch et al., 2016) and that the above mentioned trend towards the nuclear family – which includes the erosion of extended solidarity relations – is slowed down or altered by continuing urban-rural relationships and dependencies. Conflicts with landowners are further reasons for migration: "*Numerous interviews confirm that legal uncertainty, especially regarding land tenure, appears to be the most important social driver for multiple migrations in rural Benin. In particular, (…) the withdrawal of cultivated land is quite frequent*" (Doevenspeck 2011, p. 62) (cf. 3.2.3).

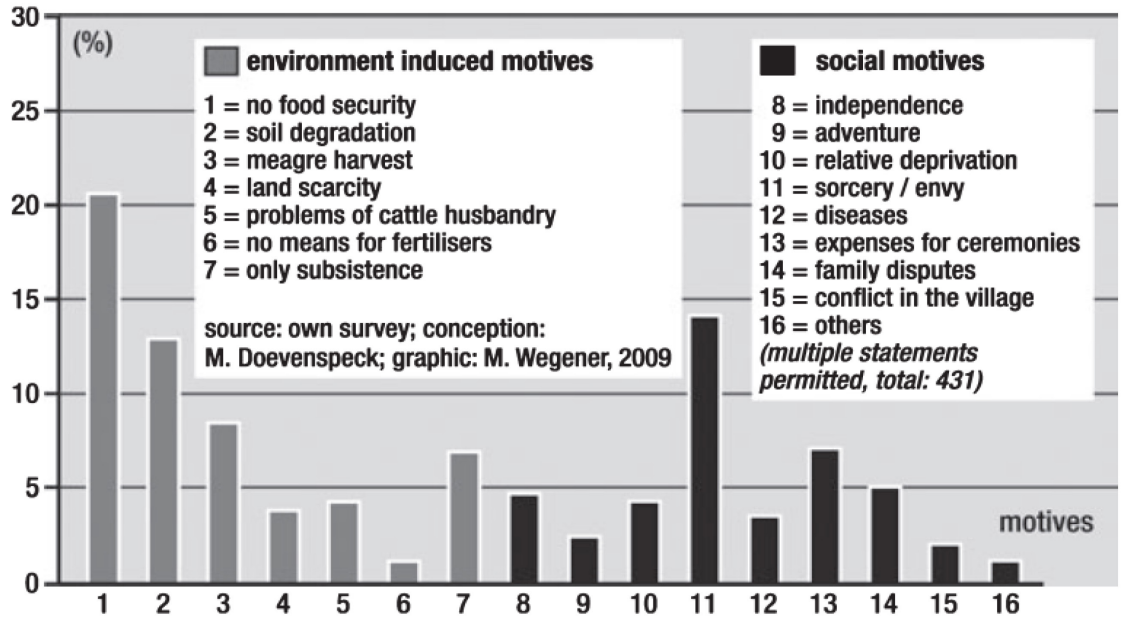

Figure 17: Motives for leaving the home village

Source: Doevenspeck (2011, p. 61)

Political stability, the absence of violent conflicts, seasonal labour demand and other reasons attract migrants to Benin from Niger, Togo, Nigeria, Burkina Faso and France (Dilip Ratha, Sanket Mohapatra, & Ani Silwal, 2011) (Int24)(Int1/14/24/54). However, labour migration from Burkina and Nigeria is decreasing due to an improved agricultural production in the neighbouring countries and, as a result, an increased demand for local employees (Int28). Pastoralists from Niger, Nigeria, Burkina Faso, and less often from Togo also cross the border during the dry season (Int14). Top destination for emigration from Benin is Nigeria, which is characterized by temporary labour migration (Int2/48/55/65). Working there for several months brings enough savings to buy important assets e.g. motor bikes or electronic devices. Emigrants further work in the trade sector to import fuel or products like electrical appliances which are cheaper in Nigeria (Int2).

Impact

The above-mentioned migration patterns are multi-faceted and of varying intensity. The observed temporary labour migration is not a new trend. On the contrary, it is a well-tried and often successful strategy to diversify incomes. However, more permanent rural-rural migration to agriculturally favourable regions contributes to increased pressure on land in the receiving region as more farmers compete for the same resources. The properties are often too small to bring sufficient yield (Int38). One consequence is the overexploitation of the land under cultivation ("soil mining") and of natural resources in general, resulting in accelerated soil degradation and deforestation as well as exerting more pressure on water resources. The expansion of urban agglomerations and lifestyles into rural or peri-urban areas is a consequence of saturated municipal areas, high costs of living and high rates of pollution in urban centres (INSAE, 2015, p. 8) (Int26/34). Increasing rural-urban linkages also promote the permeation of urban lifestyles and value pat-

terns into rural Benin and contribute to weakening social ties and safety nets within extended families (WS-B, Int2/11/45).

Summary

Overall population growth and rural-urban migration are leading to a saturation of the major urban centres of the country and the **accelerating urbanization of smaller municipal centres**. The increasing migratory movements intensify rural-urban relationships and one notes a slow increase of urban infrastructure in formerly rural areas. **Environmental degradation is a major push factor for migration**, both into urban and into rural areas. In addition, migration exacerbates the pressure exerted on natural resources. Land is increasingly becoming scarce in areas receiving migrants; the need for more agricultural land to cater for the needs of new arrivals accelerates deforestation and intensifies soil mining.

3.3.2 Social services and infrastructure: trying to cope with the challenges

Due to the strong population growth and migration flows, cities are expanding, while villages evolve into towns and entirely new quarters emerge (Int34/WS-B). Public administrations often cannot keep pace with demographic dynamics (Int16/52). As a result, infrastructures are not adapted to the needs of a growing population. An overuse of the drinking water resources and sanitation infrastructure increases the risk of diseases. School buildings are too small and human resources are insufficient (Int16). However, urban infrastructure that was formerly only to be seen in urban spaces is now partly extended to rural areas. New infrastructure such as schools, hospitals and roads and growing interconnections reduce the former sharp contrast between urban and rural areas, so far mainly in the growing southern and central provinces of Benin. The inequality in access to public services between rural and urban areas is decreasing slowly but steadily. Besides these positive effects, the increasing rural-urban interconnectedness fosters the diffusion of predominantly urban problems (especially related to environmental issues and security) to the rural sphere, and vice versa.

Expenditures on education and health represent an important item of the Beninese annual budget: in 2014, 21% of public expenditure was allocated to education (Global Partnership for Education, 2015) and 9.5 % to the health sector (WHO, 2015b), but despite all efforts, per capita government spending remained well below the average of African states and the difference in per capita spending has been increasing since 1995 (ibid.) (Figure 18) Although considerable efforts have been made, effectiveness and efficiency in the management of both sectors are still low (Int16/18/41) and a balanced geographical distribution of resources is still not ensured (World Bank, 2017).

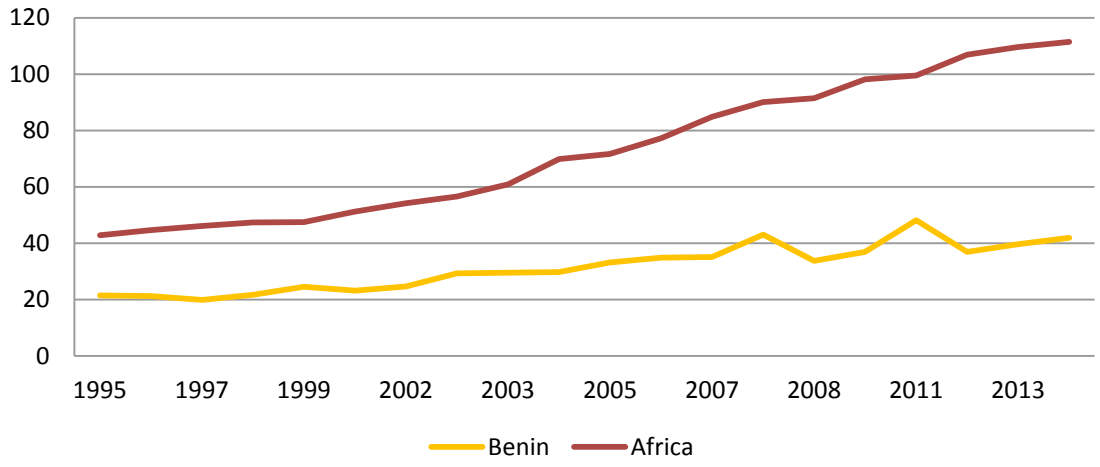

Figure 18: Per capita government expenditures on health (PPP int. $) 1995 - 2014

Source: WHO (2015b)

Health

Trends

In the health sector, one notes the following trends:

- Decelerating but overall positive developments in curative care;
- Improvements in preventive care, especially maternal health care.

Malaria is still the leading cause of morbidity with a prevalence of 41% (WHO, 2014, p. 1). On the national level, malaria is followed by acute respiratory infections and gastrointestinal diseases as leading causes for mortality (Republic of Benin, 2011, p. 69). Especially in urban areas, the spread of water-borne diseases like cholera is aggravated (Int15). One main reason for infectious diseases, e.g. diarrhoea, is insufficient access to safe water and sanitation (Int15). Access to safe water increased from 49% to 72% in rural areas between 1990 and 2015. The gap between urban and rural areas was reduced and the respective MDG target was met (78% of the Beninese population has access to safe drinking water while the use of surface water decreased from 22% in 1990 to 2% in 2015). However, only 36% of the Beninese population in urban areas and 7% in rural areas used sanitation facilities in 2015, showing only limited progress towards the MDG target (WHO & UNICEF, 2015, p. 58).

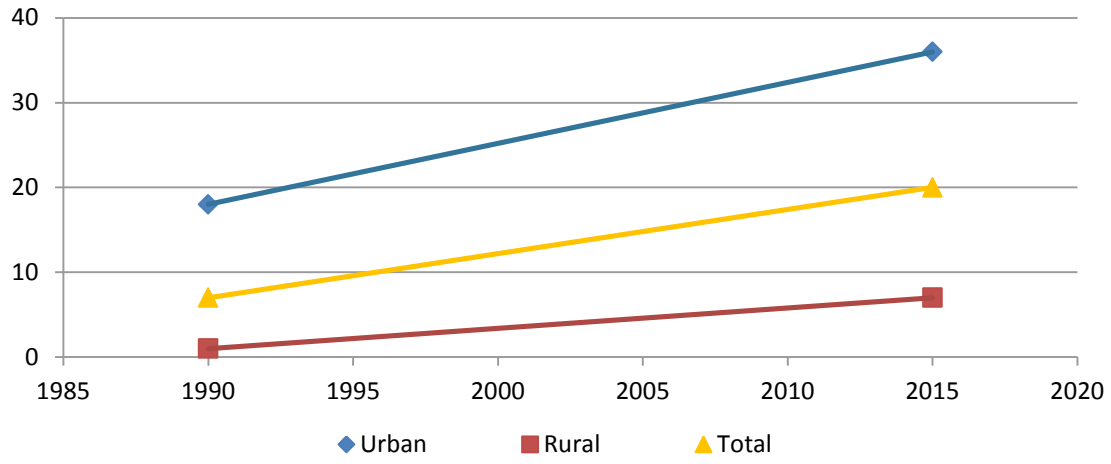

Figure 19: Use of improved sanitation facilities (as percentage of population)

Source: World Health Organisation & UNICEF (2015a, p. 58)

Vaccinations are provided free of charge as part of maternal health care programmes with the aim to cover every village in rural areas. A problem arises with frequent migratory moves, as the follow-up is difficult and children miss the second or third vaccination. Measures to raise awareness and inform about health care are taken and crucial information e.g. on epidemic diseases or risky sexual behaviour is broadcasted on the radio (Int15).

The HIV prevalence of the population between the age of 15 and 49 was 1.1% in 2014 which is low compared to the Sub-Saharan average of 4.5, or the high Zambian prevalence of 12.4 (World Bank, 2016). However, infection rates are still increasing and treatment remains a problem (Doevenspeck, 2011).

The overall positive trends in the health sector are partly attributable to improvements made in the Beninese health infrastructure. More health centres were built in the municipalities thanks to the national budget allocations and World Bank financing (Int55), training for the medical staff is also financed by the World Bank (Int55).

77% of the population have access to health coverage, but only 44% of the general population use health services (WHO, 2014, p. 1). There are several reasons for the relatively low attendance. One is that transport facilities are lacking to access remote areas, and in these zones roads are often in poor condition (Int26). Especially in the rainy season some health centres are inaccessible. As a consequence, families living far away are often not attended to. A medic in the central department of Borgou estimates that only 30-40% of the rural population frequent health centres. The others use traditional medicine, which is not always effective (Int45). Another reason is the cost of treatment and medicine in the state-owned health centres (Int15). Especially during the dry season people do not have the means to pay. In Ouémé-Plateau some people visit private physicians where a medical consultation costs CFA 100-200. However, the most vulnerable cannot even afford this small amount. In the municipality of Dangbo, there was a programme of free health care for local residents, but strangers coming from other municipalities also wanted to use the service, so they had to stop the programme (Int55).

Despite all these challenges concerning curative care, there are positive developments in preventive care. Women and their children are the main target group of the Beninese health system. There is a positive trend regarding women's health since the 1980s. At that time, no family planning existed and contraceptives were difficult to obtain. Nowadays the family planning system has a certain impact. Since 2011, health care for mothers and children under five has been free of charge (UNFCCC, 2013, p. 2). In 2012, 84% of births were attended by professional health workers (WHO, 2014, p. 2). However, maternal mortality is still high.

Impacts

Life expectancy increased to 59.2 years over 2010-2015(UN DESA, 2013, p. 74) and is therefore close to the regional average of Sub-Saharan countries. The under-five mortality rate and the maternal mortality ratio were nearly halved between 1990 and 2012 (WHO, 2015a), however maternal mortality reduction is very slow compared to other countries in the region (WHO, 2014).

Today almost every district has some health infrastructure (Int26), although a geographical inequality disfavours rural areas in the distribution of the health centres and services persists (WHO, 2014, p. 2). However, the lack of qualified staff and medical equipment continues to hamper the functioning of the Beninese health system (Int26). Diseases are cited as one minor reason amongst a variety of social motives for migration (Figure 17), (Doevenspeck, 2011)[25].

Health insurances are an important tool to improve financial accessibility to the health system especially for the rural poor. Some small-scale solutions for a mutual health insurance exist, but their coverage is limited. There is still no insurance for the most vulnerable. A new initiative tries to cope with the challenges of the current health system through the creation of a national health insurance system. It is based on a solidarity system where each family has to pay a monthly amount of CFA 1000, but this is still not operating because the funds could not be released (Int15/26/32).

Summary

Over recent decades, remarkable efforts have been made to improve the Beninese health infrastructure and preventive health care. **Access to safe drinking water and maternal and child health care have improved significantly**. Further improvements will be necessary because the country is off track for most health related MDGs, even though some sub-targets were achieved for MDGs 4 and 6. **The population of rural areas continue to have less access to health services**. Furthermore, financial poverty and socio-cultural barriers limit the use of existing infra-structure and services in rural areas.

Improved health infrastructure can shape rural transformation. Good health determines not only the physical work capacities but also the expectations and aspirations that motivate

25 "Diseases" ranked 6th out of 9 response categories; health status and the health infrastructure influencing it should thus not be overstated as a reason to migrate.

people. Bad health and costs for treatment limit assets and investment capacities of the rural livelihood. **The continued rural-service health gap limits the potential for inclusive rural transformation**.

Education

Education can open up opportunities for rural livelihoods, as basic skills in numeracy and literacy facilitate the access to credits and the acquisition of land titles. Furthermore, better educated people are more likely to adopt new agricultural technologies as they are exposed to more information. They are more likely to adopt new values and embrace changing social norms – and may seek economic opportunities in urban hubs and accelerate rural out-migration.

Benin has a 6-4-3 formal education structure. Primary school lasts for six years between the ages of 6 and 11 years. Secondary school consists of two cycles: lower secondary (grades 7 – 10), and upper secondary (grades 11 - 13). Primary school is free and compulsory (IBE, 2011).

Trends

In Benin, the following trends can be depicted in the education sector:

- Slight improvements in infrastructure, enrolment and completion rates but persisting donor dependency;
- Lack of appreciation of education and consequential high rate of school drop outs.

Expenditure on education increased from 14.7% of total public expenditures to 26.1% in 2012 (UNESCO, 2015, p. 386) but then decreased slightly to 21% in 2014 (Global Partnership for Education, 2015). Although the government has shown political will to reform the education system, financing largely depends on donors (Engel, Cossou, & Rose, 2011, p. 6) (Int29). The education infrastructure was expanded and now more schools are available and distances are below 5 km in most areas (Int2/16/32). However, not every school building is in good conditions, sometimes even basic furniture as chairs is missing (Int2/18) and not all school buildings are staffed with trained teachers (cf. 3.2.1).

Overall school enrolment and primary completion rate increased over recent decades. In 2012, Benin was one of eleven African countries with a net enrolment rate of over 90% (UNECA, AU, AfDB, & UNDP, 2015). In 2013, 76% of all students completed primary school compared to only 19% in 1990. However, there was still a gender gap: 83% of boys and only 68% of girls completed primary school (World Bank, 2016).

Figure 20: Primary and secondary Rates Benin and Sub Sahara Africa 1990, 2000, 2013

		Benin			SSA		
		1990	2000	2013	1990	2000	2013
Primary completion rate (% of relevant age group)	male	26,37	49,31	82,94	59,59	59,51	72,08
	female	11,18	25,33	68,35	48,39	49,55	66,11
	total	18,65	37,26	75,68	54,04	54,57	69,13
Lower secondary completion rate (% of relevant age group)	male	10,64	20,90	54,99	25,48	28,70	41,81
	female	2,49	9,28	35,29	18,35	22,29	34,02
	total	6,48	15,04	45,16	21,91	25,49	37,93

Source: World Bank (2016)

A main reason for the increased school attendance is the introduction of free primary education in 2006. Government granted schools subsidies to cover tuition fees and textbook acquisition in deprived areas. Nonetheless, interviewees report that parents have to pay for materials like exercise books, pens, and the school uniforms (Int2/41) as well as exams twice a year (Int29). This applies even more so in the case of secondary education. Out of school rates are accordingly highest for children in the poorest wealth quintile and are higher for children from rural areas than from urban areas.

In 2013, 45% completed lower secondary school; however completion numbers for boys were higher than for girls (55% vs. 35% girls (Figure 20). These numbers indicate an increasing gender gap the higher the education level. School drop outs affect girls to a much larger extent than boys due to pregnancy, marriage (after which traditional roles see them at home managing the household - Int2) or household chores (Int18/29/30). Traditional gender roles still predominate in most rural areas, especially in the north. Furthermore, there is a large urban-rural gap: in urban areas, there are twice as many young people attending secondary school as in rural areas (EPDC, 2010, p. 3f). In 2006 only 2% of the population aged 15 or older had post-secondary education (Wagdy Sawahel, 2009).

Besides financial constraints, interviewees also mentioned that parts of the rural population still do not appreciate the value of education and children quit school to either seek paid work or to work in the family's fields (Int41), sometimes in order to pay the fees for the younger siblings (Int18). In the rainy season, more children work in the fields and the classrooms are relatively empty (Int41). Especially the ethnic group of the Peulh, who live as transhumant pastoralists in the north and centre of Benin, often find that cattle breeding is more remunerating than attending school on a regular basis. The conditions of formal school (time frames, locations) contradict to their way of living and producing. School absenteeism – as shown in the case of the Peulh – can also be founded in the logics of specific rural livelihoods. They often attend school only for a short period of time and drop out early (Int18) (cf. Textbox: Pastoralists at risk of social exclusion).

Some parents also question the value of school education as quality of education in Benin remains pretty low (Int16). This is partly due to a lack of qualified teachers that followed a closure of teacher training colleges in the late 1980s (Engel et al., 2011, p. 4). Another issue is the lack of

incentives to work as a teacher or the necessity to find alternative income. Salaries are often paid with delay, and in some cases parents have to pay the local teachers (Int16/18/41). Teachers' strikes are common (Bogino & Sack, 2012, p. vii), especially in rural areas where working and living/housing conditions for teachers are often worse (Int16). Last but not least, Benin has one of the highest student/teacher ratios in Sub-Saharan Africa in primary schools (47:1) (Ness & Lin, 2015, p. 287).

A further criticism made was that the curricula in Benin are still to a great extent copied from European countries and are not oriented towards the teaching of practical skills (e.g. vocational training) (Int41). In a generally very difficult labour market in Benin, school education does not help to make this any better. After leaving school many students find no employment as they do not meet the requirements of the limited Beninese labour market (Int16). Therefore, wealthier families send their children to private schools where the education is often better because teachers do not strike and class sizes are smaller (Int16/19).

Impacts

Despite improved access, quality of education is still low. With the increasing number of pupils and the worsening teacher-pupil ratio, the quality further drops – and with it the reputation of formal school education and of teachers, which is already generally low (Int41).

The gender gap reduces the economic options for women. They typically set up a small business and work in the processing of agricultural products. In contrast, according to patriarchal gender roles men have to earn the money and therefore continue going to school to acquire new skills (Int18).

Fees and expenditures have a socially exclusive effect. In rural areas, the majority of families do not have the means to pay for primary and secondary education and especially not for private schools. Their children are thus ill-prepared for the (urban) labour market and for improving agricultural income.

Summary

Enrolment and completion rates in primary education have been developing in a positive direction over recent years. School attendance in secondary education is still poor, especially for girls. But numbers were also increasing over the past decade. However, the quality of education cannot keep pace: Curricula are not adapted to the general needs of students and labour market demands. Large classes and a shortage of sufficiently qualified teachers are the main obstacles to better learning outcomes. These weak points of the public education system are worse in the rural areas.

Basic skills in numeracy and literacy facilitate the access to credits and the acquisition of land titles. Furthermore, better educated people are more likely to adopt new agricultural technologies as they can access more information and have the capacity to calculate profits and losses and thus to evaluate the risk inherent to all new techniques and technologies. Younger students can also teach their parents what they have learned at school, a method already used to

improve health and hygiene in rural areas (Int29). A functional social infrastructure is also an important reason to stay in rural areas; families are more likely to leave villages without schools and health services.

Rural areas in Benin are still generally characterized by significant structural disadvantages. Access to social services continues to be more difficult and their quality is often lower, as both infrastructure and the staffing with teachers or medical staff continues to be characterized by an urban bias. Such disadvantages generally restrict the possibilities for socially inclusive rural transformation – and they do so in Benin, as health indicators and education indicators continue to show.

3.4 Environmental dynamics – general trends

Environmental dynamics are a key factor in rural transformation as they are the base for rural livelihoods in a predominantly agrarian society. In Benin, weak legislation, institutional settings, and a lack of awareness combined with high population growth have led to severe overexploitation and degradation and depletion of natural resources. This development is further exacerbated by climate change and affects agricultural yields and livestock as well as the availability of ecosystem services. Measures for adaptation, conservation and rehabilitation are necessary to achieve social inclusion and environmental sustainability.

3.4.1 Natural resources: soil, pastures, water and forests

Benin has different ecosystems which constitute the base of its socio-economic and cultural development. As a lot of the population lives below the threshold of poverty (cf. 3.1), they depend on the (over)exploitation of natural resources to survive (Aregheore, 2009, p. 9).

Governance of natural resources continues to be weak. The weak implementation of strategies and policies in Benin represents a general governance issue (cf. 3.2.2). Likewise, natural resource management policies lag behind in their implementation, as two examples on biodiversity in the textbox below exemplify.

Challenges in implementing UNCCD, UNCBD

Benin is bound to different international natural resource conventions, like The United Nations *Convention* to Combat *Desertification (UNCCD) or The Convention on Biological Diversity (UNCBD).* An evaluation of the portfolio of the global environmental facility identified some challenges: on the one hand, they experience a lack of capacity to develop project proposals and access international funds. On the other hand, there are difficulties in the mobilization of intrinsic resources in the effective implementation and cross cutting integration and coordination (GEF, 2008, p. 4). The connection and synergies between different categories of natural resources, like in agrosilvopastoralism or silvyculture has not yet been recognized and/ or pro-

moted (Int22). For example, the institutions and policies responsible for agricultural development hardly take climate change into account. Similarly, climate change organizations do not have a strong expertise in agricultural issues (Momouni, Ismail M. & Idrissou, Latifou A., 2013, p. 21).

In 2010, the National Strategy and Action Plan on Biodiversity (SPANB) (2011-2020) envisaged installing effective natural resource management, amongst others through the creation of a viable framework for coordination, monitoring and guidance of all national activities of biodiversity management. In 2014, this framework still did not exist (Convention sur la Diversité Biologique (CDB), (2014), p. 70).

Land, soil and pasture

Ferruginous soils with favourable agricultural potential prevail in 82% of the country. Less fertile conditions are found in the barely developed mineral soils of the Atacora region and in the sandy soils along the coast. Benin's total cultivable area is around 62.5%. Only 20% of this is actually exploited due to low agricultural mechanization, the small number of farms and the land tenure system (3.2.3.) (Aregheore, 2009, pp. 5–6). Figure 21 gives an overview of the vegetation cover in the country.

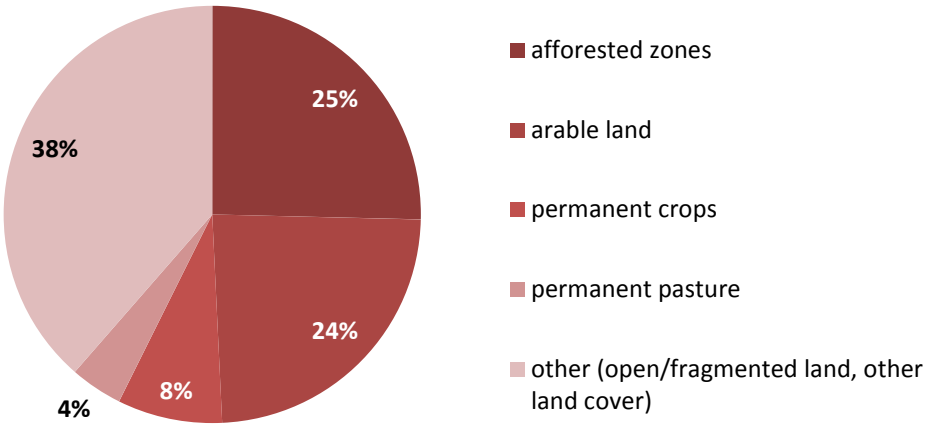

Figure 21: Land area covered by vegetation

Source: Aregheore (2009, p. 5)

Trends

Major trends concerning land resources and pastures are:

- Ongoing degradation of land resources due to excess land use, a lack of awareness for sustainable management, as well as tenure insecurity;
- Expansion of agricultural land and increasingly shorter fallow periods;

- Increasing degradation of pastures due to overstocking in the course of reduced pasture availability (transformation of pastures into agricultural land; erratic rains);
- Agro-chemicals continue to be applied excessively in the cotton sector.

The southern part of the country including Ouémé-Plateau underwent a rapid increase of population density throughout the 20th century. This went along with changing land use patterns: vegetation was cleared and put under cultivation, often an intercropping of food crops and oil palms interspersed by monocultures of oil palms (Igue, Floquet, & Stahr, 2000, p. 230). The centre of Benin, including Borgou, also experienced strong population growth. This was partly natural and partly by immigration of people from the southern plateau and the Atacora region (Int31). The mosaic of cultivation and fallow expanded while woodland, woodland savannah and tree savannah decreased (Igue et al., 2000, p. 231). This intensification of land use affected the relatively unfertile soils. As the population grows, both study areas experience strong demand for agricultural land (Int19/22/38/42).

Simultaneously, the agricultural expansion turns pasture into cultivated land and thus renders the pursuit of pastoral economic activities more difficult. In combination with increasingly erratic rains (cf. 3.4.2), this encroachment on pastures increases the number of animals and the time they spend per grazing area. The quality of pastures is thus impaired by compaction and overgrazing beyond their regenerative capacities ((Convention sur la Diversité Biologique (CDB), 2014). Other strategies are wider ranging distances and grazing on cultivated land. The latter represents an increasing source of conflict (Int20/22/53).

Chemical fertiliser is hardly used on any crop but cotton (Aregheore, 2009, p. 6). Chemical inputs are often either underused, due to limited availability, or misapplied; as they are usually imported from surrounding countries like Ghana or Nigeria and thus do not include instructions in French (Int3/11/50/51). Government subsidizes and distributes fertilizer for cotton, but fertilizers adapted for other crops are harder to come by, thereby excluding most small scale farmers. Thus, these farmers apply the cotton fertilizer to other crops (Int67). While this does not impact soil quality, it means that crops do not receive optimal nutrients in terms of composition and quantity, thus yields are affected. In general, there seems to be a lack of awareness for sustainable management and consequences of overexploitation due to inadequate extensions services (Int69) (cf. 3.2.2). This goes hand in hand with the absence of studies on long term environmental effects of pesticides and other chemical products in agriculture (Int21). Likewise, overgrazing occurs, on the one hand due to too much livestock as carrying capacity is ignored, on the other hand due to exclusive tenure regimes (Convention sur la Diversité Biologique (CDB), 2014, p. 21; Direction de l'amenagement du territoire, n.d.; Saïdou, Kuyper, Kossou, Tossou, & Richards, 2004).

Apart from awareness, unsustainable practices might also be connected to insecure land tenure that arises after internal migration. A study on tenure security and soil fertility management explains the practice of short-term fallow as follows: "(…) the adoption of long-term fallow in Benin may result in the loss of the migrant's land use right. Fallow of long-duration may be considered as non-occupied land and allocated to migrant newcomers." (Adjei-Nsiah, Saidou, Kossou, Sakyi-Dawson, & Kuyper, 2006).

Impacts

As a consequence of decrease of organic stock and natural fertility, more and more fertilizer must be applied to obtain the same yield (Int24). Agricultural productivity is declining, which might further increase food insecurity in the long run (Int12) – in 2014, 12% of the population were considered "food insecure" and another 13% "in risk of food insecurity[26] (République du Bénin, 2014, p. 76). Additionally, depleted soils lose their complete vegetation cover, which in turn increases wind and water erosion. The erosion on the other hand leads to silting up of river bodies and contributes to flooding (Int51). As a consequence, farmers start migrating to agriculturally more favourable regions (Int31).

Due to the overexploitation, the regenerative capacity of pasture is inhibited and desertification is stimulated (Convention sur la Diversité Biologique (CDB), 2014) (Direction de l'amenagement du territoire, n.d.). This diminishes available pastures and reduces quality and quantity of fodder (Convention sur la Diversité Biologique (CDB), 2014, p. 21) (Int20/22). As pastures are becoming scarcer (Int22), livestock has to be moved further in search of fodder (Int3) and the pastoralists often enter agricultural zones which often results in conflicts (Int20/22/53) (cf. 3.3.1).

So far, there are some single initiatives driven by local NGOs to make agricultural production more environmentally sustainable. These initiatives however have not (yet) reached an important scale.

Water management

Benin's water resources are estimated at 15 billion m³/year including approximately 2 billion m³ of groundwater and 13 billion m³ of surface water. Currently, less than 3% of the resource is tapped. The Global Water Partnership (2010) predicts that the country will need only 40% of these resources to fulfil its development needs by 2025. However, this has not taken into account climate change impacts that alter water availability. Additionally, the water resources are unequally distributed in space and time and can cause water stress for parts of the population when not properly managed. A study on seasonal water demands in Benin's agriculture (Gruber, Kloos, & Schopp, 2009, p. 204) concluded that seasonal shortages in agriculture and livestock production are however not a consequence of general water scarcity but of a lack of technical equipment and financial means of farmers, of access to water sources, and the poorly organized water management.

Figure 22 gives an overview over water use per sector. Irrigation is the main form of use; still irrigation is in total not widespread. In 2010 there were only five larger irrigation sites (around 1600 ha), additionally, vegetables in peri-urban areas are watered all year and in inland valleys during the dry season. Livestock watering is another important water consumer (Höllermann, Giertz, & Diekkrüger, 2010, p. 3594).

26 Decisive factors for food insecurity are geographic location (Mono, Atacora, Couffo and Donga have food insecurity ratios far above average), poverty status, as well as the gender, age and education level of the head of household (République du Bénin, 2014, pp. 75–77).

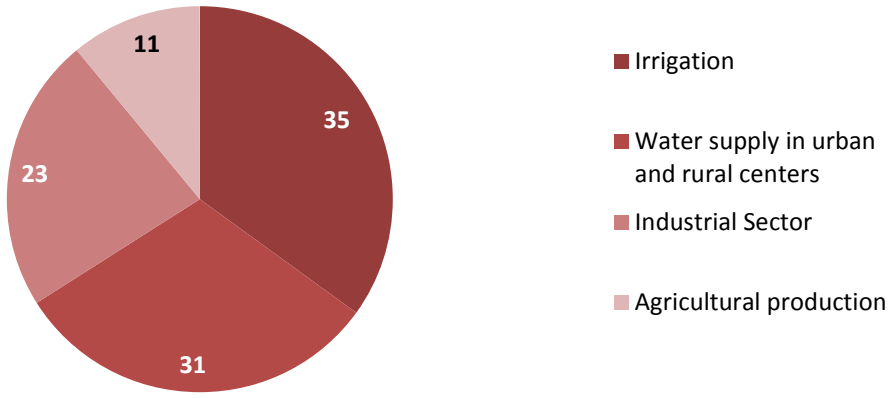

Figure 22: Water use in Benin per sector (in %, 2011)

Source: Dominguez-Torres & Foster (2011, p. 20)

Trends

For water resources there are the following trends:

- No visible change concerning water availability and scarcity – despite less overall and increasingly erratic precipitation events (cf. 3.4.2);
- Increase of irrigated land until 2003 and subsequent slight decrease – potential for irrigation remains above West African average;
- An increasing deterioration of water quality.

Concerning water availability, no trend can be deduced in Benin. Water scarcity has not been perceived as a big issue by farmers, although conflicts are expected for the future if rainfalls decline and given inadequate water regulations (see below).

The irrigated area in Benin grew 4.7% annually between 1973 and 2003 (Dominguez-Torres & Foster, 2011, p. 20) but slightly declined between 2003 and 2008 (World Bank, 2008) The IBRD assesses a potential above the West African average for expanding large scale irrigation in central and southern Benin, which would however require great investments (the area that could be developed through small-scale projects is comparatively small) (Dominguez-Torres & Foster, 2011, p. 20).

Water quality is degrading in Benin, i.e. water is becoming more and more polluted. Agricultural chemical inputs (Int11/22) are washed into water bodies without monitoring (Int48/19). Chemical fishing gear, that became available in the last year, is increasingly in use (Int61) and fishing bans were abolished (Int63). Water management plans do not exist (Int44), catchments and water uses in Benin are not controlled, and existing rules and regulations are not enforced (Global Water Partnership, 2010). With current climate change projections, seasonal and spatial water scarcity can be expected to increase (Höllermann et al., 2010) (Boko, Amoussou, Totin, & Sedjame, 2014; Höllermann et al., 2010).

Impacts

The aquatic biodiversity on the coast is under extreme stress due to overfishing and water pollution driven by the population boom, threatening both the livelihood of coastal fishers and the ecosystem balance. The National Biodiversity Strategy Review (2014, p. 26) states that Benin's marine species have not been studied sufficiently and are under threat of silent extinction. This is accelerated by climate change and its impacts like warming of the oceans and sea level rise (ibid).

As mentioned before, water scarcity is not perceived in the studied regions. Spatial and seasonal differences hamper inland fisheries and aquaculture and thus limit opportunities for economic diversification. But so far they do not trigger structural changes like migration. However, a study on environmentally induced migration in the north of Benin revealed that rural dwellers stated that "in their opinion, people would not decide to migrate if water was available at all times" (Dreier & Sow, 2015, p. 3194).

Forests

Forests provide a range of ecosystem services of value to humans (regulating climate and water table, reducing erosion, storing CO_2, provision of food and construction material, cultural services etc.) and they are relevant reserves for biodiversity. Benin does not have extensive forests. The natural vegetation is dominated by woody savannah instead of dense evergreen woodlands like in the other countries along the Guinean Coast (Ministère de l'Environnement et de la Protection de la Nature (MEPN), 2008, p. 28; Paeth, Capo-Chichi, & Endlicher, 2008, p. 104). The extent of forest cover in Benin varies widely according to sources: while the environmental ministry (2014, p. 6) estimates a forest cover of 47% or 45,000 km², Benin's Economic and Social Council (2011, p. 11) estimates 19% or 27,000 km². Rainforests existed once in the southern part of the country, but have almost all disappeared (USGS, n.d.).

Trends

For forest resources, one can observe:

- Ongoing deforestation and forest degradation due to agricultural expansion, wood extraction and animal husbandry;
- Government measures to curb unsustainable exploitation of resources and programmes to substitute traditional biomass as main fuel or to optimize its consumption have had limited impact.

Since the 1950s, the country has experienced massive deforestation and FAO rates Benin as one of the 10 most deforested countries worldwide (Convention sur la Diversité Biologique (CDB), 2014, p. 8). The government thus created more than 2,500,000 hectares of state forest and started extensive plantation of trees. As a result, the deforestation rate decreased from -1.3% in 1990-2000 to -1.0% for 2000-2010. The plantations comprise both wet and dry tolerant species, thus it is projected that the forestry sector will not be affected too much by climate variability (Ministère de l'Environnement et de la Protection de la Nature (MEPN), 2008, p. 28).

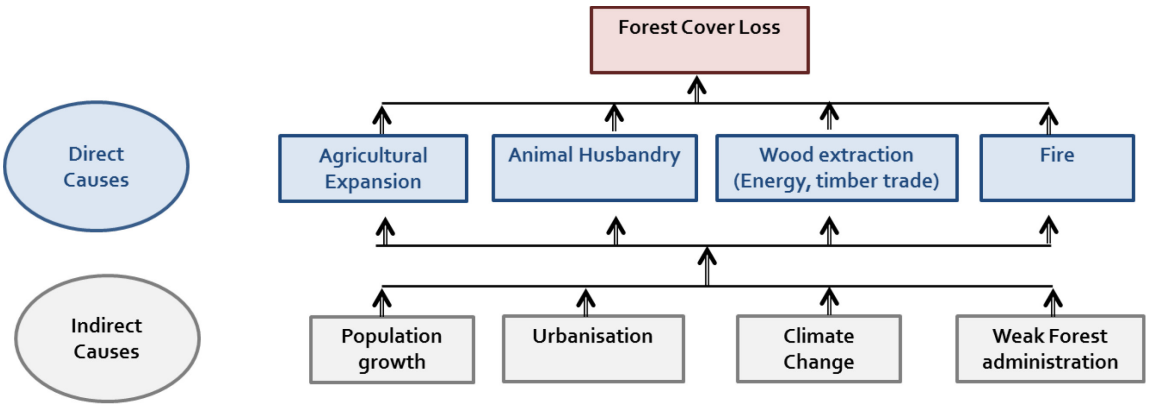

Figure 23: Direct and indirect causes for deforestation in Benin

Source: adapted from Conseil Economique et Social (2011, p. 17)

The main direct cause for deforestation is the agricultural expansion due to the high population pressure and the decreasing soil fertility (Conseil économique et social, 2011, p. 17) (Int 19/22/38/42/52). Another cause is deforestation to create pasture (Int20), and animal husbandry in an extensive, wandering and uncontrolled form. Cattle mostly consume seasonal dry woody forage species. The woody stratum, which is the stable element of forest cover, is seriously disrupted. Cattle (over-) grazing is thus a significant cause for the regression of forest cover (Conseil économique et social, 2011, p. 17).

The population growth also leads to a strong increase in forest product exploitation, for construction wood, furniture and especially for charcoal production (Int2/7/20). Charcoal is used as a cooking fuel in urban areas, its demand increased with the urbanization so that the production of charcoal became a lucrative income source (Int13/51). The rural population also cuts trees for firewood, but to an insignificant amount compared to the consumption in urban areas (WS-C). Charcoal production has become more and more uncontrolled: it increased from 39,300 tons in 2009 to 62,500 tons in 2010 (Convention sur la Diversité Biologique (CDB), 2014, p. 8). Despite the fact that fuel-efficient charcoal cooking stoves are produced and sold locally (Int8/64), the demand for charcoal is rising. Gas could be an alternative, but is too expensive at the moment (Int22/42/51). So far, there is no political will to look into alternatives for domestic fuels which leaves tree cutting as the only option (Int22/42). Besides that, Chinese manufacturers demand more timber (especially teak/rosewood) for furniture construction, which encourages illegal logging (Convention sur la Diversité Biologique (CDB), 2014, p. 8). Non-timber forest products (NTFP) are so far limited to seasonal, small scale mushroom harvests (Int20/22).

Shortcomings of forest administration

Until the 1990s, forests were governed by the state alone. Access was restricted and the population was excluded from any decision making. This led to conflicts between foresters and the local population. As an answer, co-management schemes for forest reserves were introduced in 1993[27] (Djodjouwin, 2000, p. 348). Since then, every forest has had a management plan that regulates exploitation. Adjacent villages have a co-management centre and are responsible for monitoring, management and awareness raising. While this usually works well as long as it is externally financed, the population returns to overexploitation as soon as financing for the participatory scheme ends, driven by poverty and a lack of income opportunities (Int7/22). Interviewees also complained about administrative inefficiency and corruption, e.g. authorities can exploit for free instead of using contracted quotas (Int7/22/62), which hampers effective management in the long run (Int62/69).

Wood harvesting is permitted in plantations and non-classified forests, provided people have exploitation permits and pay a fee to the relevant authority. Control posts o are set up along the road to check on and account for the overland transport of all forest resources (Int62). Transport and commercialization of cut wood is subject to a transport permit and tax payment. The authority of these foresters is however overruled by superior interests of powerful politicians or families, and transport permits can be easily obtained with the proper affiliations (Int62). E.g. teak is illegally imported from Nigeria, classified as Beninese teak to be then "legally" exported from the port of Cotonou to Asia (Int22/62).

Impacts

The deforestation contributes to a decrease in convective rainfalls; climate variability impacts are thus exacerbated. The loss of trees also encourages desertification, soil erosion and siltation of water bodies and leads to a loss in biodiversity (Conseil économique et social, 2011, p. 18).

Several afforestation projects and programmes have been introduced in the last decade. However, so far they are too small in scale to really make a difference. They often exist merely on paper (Int 11/36) as there is no follow-up or monitoring (Int11) and they usually tail off after external financing ends (Int7/22).

3.4.2 Climate and Climate Variability

Benin is characterized by three climate zones: the Guinean-Congolian, Sudano-Guinean, and Sudanian climate zones. Characteristics are shown in Table 5.

27 Forests in Benin are classified either as "forêts classés" or "forêts protegées". Based on the current law 93-009 / 2 July 1993, exploitation is allowed and regulated with quotas in the first category and forbidden in the second. Today, over 90% of forests are classified and thereby integrated into an overall management plan (Int22).

Table 5: Agro-climatic characteristics in Benin

	Guinean-Congo	Sudano-Guinean zone	Sudanese
Location	South of Benin	Centre of Benin	North of Benin
Rainfall regime	Bimodal with two rainy seasons alternating with two dry seasons	Unimodal: one rainy and one dry season	Unimodal: one rainy and one dry season
Rainfall average	1200 to 1500mm with 250 days of rain	900 to 1100 mm with 113 days of rain	900 to 1100 mm with 145 days of rain
Temperature average	25 - 29°C	25 - 29°C	24 - 31°C
Relative humidity	69 - 97%	31 - 98%	18% (Harmattan, December) and 99% (rainy season August)
Vegetation	Islets of semi-deciduous forests, mangroves, gallery forests, riparian forests	Dry deciduous forests, open woodland, tree and shrub savanna crossed by gallery forests	Savanna and gallery forests with sparse tree cover

Source: adapted from Convention sur la Diversité Biologique (CDB), (2014, p. 2)

Trends

Concerning climate variability, Benin is marked by the following trends:

- Increasing average annual temperature with more hot days and nights;
- Decreasing rainfall totals with high seasonal variability.

The average annual temperature has increased by 1.1°C since the 1960s at an average rate of 0.24°C per decade. The number of especially hot days and nights[28] has significantly increased in all seasons; the number of cold days and nights has significantly decreased for the same period (McSweeney, C., New, M., & Lizcano, G., 2008, p. 1). In the future, temperature is predicted to increase by 1.0 to 3.0°C by 2060 and 1.5 to 5.1°C by 2090 with a more rapid warming in the northern inland regions than in the coastal regions. Most projections foresee an increase in hot days and nights and a decrease in cold days and nights. These projected changes in daily temperature extremes are largest in the coastal areas (ibid.).

From 1960 to 2006 the country experienced high seasonal rainfall variability, both in patterns and in annual totals. Totals decreased, but at the same time especially wet years occur (Yabi & Afouda, 2012, p. 39). Rainfall decreased most consistently in the rainy season between April to June (3.5% per decade) and strongest in southern Benin (McSweeney, C. et al., 2008, p. 1). In the south, except for the coastal regions, the second rainy season is also shorter and brings less rain. In the north, there is a tendency of overall declining rainfall, later onset of heavier rain and short-

28 " 'Hot' day or 'hot' night is defined by the temperature exceeded on 10% of days or nights in current climate of that region and season. 'Cold' days or 'cold' nights are defined as the temperature below which 10% of days or nights are recorded in current climate of that region or season." (McSweeney, C. et al., 2008, p. 2)

ening of the rainy season (Ministère de l'Environnement et de la Protection de la Nature (MEPN), 2008, p. 20).

For rainfall prediction, the IPCC gives large inter-model variations in both amplitude and direction of change. It is foreseen that dry phases will increase while heavy rainfalls leading to inundations will also occur more frequently (Niang et al., 2014, p. 1209).

Benin flash flood 2010

In September 2010, Benin suffered from the worst flooding in history. 680,000 people from 55 of the 77 communities in Benin were affected, 46 people died and 180,000 were displaced. 128,000 hectares of crop plant were totally destroyed (Ahouangan et al., 2014, p. 265). More than US$ 262 million losses to agriculture, commerce, infrastructure and other sectors followed (UNDP ALM, 2014).

Impacts

The shifting rainfall patterns have changed the agricultural seasons, which today already severely affect farmers (Int3/12/14/20/22/33/49/51). They suffer worst from the declining or retarded rainfall (Int20/22/36/44) because late or absent rains delay seeding. As rainfalls are no longer reliable, it is difficult for farmers to apply inputs on time (Int28), which affects crop quantity and quality (Int37/44). As a result, the agricultural calendar as it was known and taught does not match the current conditions (Int54/57). Some farmers are so discouraged that they quit their village and move either to towns (Int65) or to more favourable regions (Int31). The changing rainfall patterns also lead to a degradation of pastures in certain seasons, a development particularly affecting the North. As a consequence, livestock has to go further distances in search of fodder (Int3) and/ or encroaches on agricultural areas, leading to conflicts with farmers (Int20/22).

Furthermore, unusually heavy rainfalls can cause severe flash flooding as happened in 2010, and this further increases the vulnerability of (segments of) the population (Int19/33/36/59/69) (see textbox) (République du Bénin, 2014, p. 105). Even in the absence of flash floods, increasing intensity of precipitation also raises erosion rates, as heavier raindrop impact removes more topsoil and favours the washing out of nutrients – which negatively affects soil fertility.

For the future, experts believe that even traditional staple crops like millet and sorghum, which have a high heat tolerance, will be negatively affected, since the optimum temperature for best yields will be exceeded. The cultivation of rice on the other hand can benefit from climate changes, as the combination of a moderate temperature increase, adequate water resources and a possible fertilizer effect from the increased atmospheric concentration of CO_2 (which has to be verified depending on local circumstances) (Cartwright, 2013) can lead to a 2-10% increase in paddy rice. However, this change for the better ignores changes in the agricultural calendar, climate-induced changes in crop pests and possible shifting of optimal cropping areas (Perret, 2008, p. 15ff).

In the context of climate change and in the absence of technical progress installed in agricultural production, the National Adaptation Programme of Action (NAPA) also envisions the lack of labour as a huge constraint for agricultural development. Especially since this lack is already visible, as there is a trend of young people migrating to bigger towns to find paid work (Int30/38) (Ministère de l'Environnement et de la Protection de la Nature (MEPN), 2008, p. 26) (cf. 3.3.1).

In general, the impacts of climate variability usually disproportionately affect the poorer and marginalized farmers, who they lack capacities to respond to the new challenges, e.g. access to irrigation, improved varieties and information. If no targeted measures are taken to develop coping capacity of the marginalized, social exclusion is fostered.

Adaptation hitherto

- Since 2013, projects for climate change adaptation are being implemented under NAPA;
- Some varieties adapted to drier conditions have been introduced, albeit mainly for cash crops;
- Farmers perceive adaptation action by government and R&D to be insufficient.

On the national level, different projects targeting agriculture, food security, energy, water management as well as coastal regions have been implemented under the NAPA since 2013. Progress reports are not publicly available, so no assessment of the state of implementation can be drawn here. Adaptation is also mainstreamed into national programmes and strategies, as reflected in the Growth and Poverty Reduction Strategy (*Stratégie de Croissance pour la Réduction de la Pauvreté*, SCPR3 (2011-2015)), the reference document for the development of sectoral strategies (UNFCCC, 2013, p. 2).

On the regional level, there are some adapted varieties for certain crops that have shorter cycles and are suitable for drier ground (Int3). However, early maturing varieties give lower yields and when rainfalls are not shorter, the harvest rots in the field. Thus, these varieties can worsen the farmer's situation and can thus be a form of maladaptation (Neubert et al., 2011, p. 129) There are also university cooperation projects and research centres focusing on agricultural adaptation, but they often concentrate on cash crops (cotton, oil palm). Farmers lack knowledge and technology for other (food) crops (Int3/33). Interviewees also missed a steady provision with inputs to handle production more flexibly (Int28) as well as extension services to disseminate climate smart practices (Int20). This can be explained by various factors: inadequate research funding and a corresponding weak level of technological development; missing human, financial and material resources in the field of data collection and interpretation; and communication difficulties between the different sectors (cf. 3.2.2) (Direction Générale de l'Environnement, 2011, p. 143ff; Okali, 2014, p. 3) (Int69). In the absence of more adapted seed material, farmers have to opt for sowing spaced in time in order to catch early as well as late rains and reduce seed losses (Int44).

In general, interviewees feel that not too much is happening in terms of adaptation (Int11/28/39). While the term climate change is widely used, a clear definition and understanding of the underlying mechanisms is not widespread. Adaptation is perceived as a new concept that is not yet addressed by the government (Int39). In Benin, theoretical research is more developed than practical adaptation – which the farmers feel is left to them (Int54/69). According to international

organizations, farmers have adapted little so far – which they explain on the one hand by an expectant attitude towards the government, on the other hand by a lack of capacities of farmers to react to changes. Their limited capacities are partly caused by a lack of knowledge (e.g. of more humidity-conserving techniques like zero tillage or mulching) and partly because of a lack of capital to purchase more or different seeds (Int69).

Summary

Natural resources are in a process of ongoing degradation due to mismanagement, weak regulation and legislation as well as overexploitation. This triggers conflicts over the remaining scarcer resources, especially between farmers and pastoralists. With a lack of other income sources, a good part of the ever-growing population is dependent on the resources' services.

The environmental degradation exacerbated by climate change impacts the livelihoods of the population particularly in the most affected regions: the changing environmental conditions degrade the means of production and decrease economic opportunities. In consequence, parts of the population have to reorient themselves to new opportunities.

Migration is a common adaptation strategy, on the one hand to urban settings with mostly precarious and informal job opportunities, on the other hand to less degraded rural regions. Here, the resulting high population density and the poorly adapted cultivation systems practiced by migrants adds to the pressure on natural resources and infrastructures and thus to the accelerated degradation of the intact resources. Those who cannot respond to the degraded economic production conditions (by means of migration or economic alternatives) find themselves in a downward economic spiral.

The segments of the rural population with the least reserves are the most affected, i.e. the poorer small scale farmers and vulnerable households, as they have the least leeway to adapt or react to those changing circumstances. They have few options to choose from and are thus hit hardest by the changes.

3.5 Conclusion

Rural transformation is partially ongoing in Benin, albeit at a moderate pace. It is characterized by

- **insufficient employment creation to absorb the persisting high population growth**; despite slowly increasing economic diversification and overall growth within and outside the agricultural sector;
- **precarious non-farm employment** that does not generate sufficient revenue to step-up on the economic ladder and to transfer relevant amounts of cash to rural regions;
- **retaining small scale farm structures with ineffective organisation** as main producers of food items and agricultural products for export; they increasingly produce for local and

regional markets and **production is increasingly diversified but productivity is decreasing**. The prominent role of cotton as main cash crop is slowly reduced because of inefficiencies of the Beninese cotton sector and world market developments but there is no significant switch to supporting the economic livelihoods of small-scale farmers;

- **increasing number of landless farmers** in quest of revenues due to increasing land pressure and monetary value attributed to land, especially in peri-urban areas and rural areas along major roads. Efforts to curtail land speculation by harmonizing customary and judiciary law are ongoing but so far only partly implemented. Poor farmers are tempted to sell off their land; and land is not always purchased for productive purposes but may serve as savings for urban middle classes or be used for speculation purposes;

- **increasing temporary and permanent migratory movements** (urban-urban, rural–urban, rural-rural) **leading to increased spatial inequalities** due to a) a saturation of major urban centres, accelerated and unplanned growth of satellite towns of main municipal towns; b) increased land pressure in favourable agronomic regions (central Benin, along the border to Nigeria); c) decreasing population density in regions with rapidly deteriorating agro-climatic conditions;

- **slowly increasing access to social services in rural areas** as a consequence of growing urban-rural interconnection, however **urban areas keep struggling to provide services for the growing population**;

- **increasing penetration of urban lifestyles** including consumption patterns in rural areas due to increased communication and information technology. In combination with higher mobility it results in intensified **changes within the social texture,** reducing the relevance of extended families and village networks and increasing the importance of nuclear families;

- **more social conflicts due to spatial expansion** and increased competition for space, natural resources as well as service and infrastructure access;

- **limited commercialization** due to often low or substandard production which counteracts the increasing relevance of local and regional (West-African) markets;

- **stagnating financial decentralization and thus limited potential of decentralized governance** curtails the increasing participation of local actors in decisions affecting socio-economic environment and framework conditions;

- **slowly expanding financial services and limited private business development**, they did not yet reach the scale or inclusiveness to kick-start transformation in the economic sector.

The above-mentioned processes and means of economic production result in **deteriorating natural resources** – decreasing soil fertility, deforestation, loss of biodiversity – transforming conditions for agriculture, livestock rearing and fisheries in various ways. This transformation reinforces pressure on degraded areas and thus triggers a further overuse of resources, the risk of disputes about land and the territorial control of the access to resources. The deteriorating resources will, in the medium term, jeopardize economic growth, especially in the agricultural sector, affecting human health. This will force a further structural adjustment of cultivation methods

and livelihoods. The accelerated deterioration of natural resources in Benin – to which global climate change is contributing – is thus both a driver of transformation and a consequence of it.

The transformation process is currently not comprehensively managed or oriented by policy makers. Their strategic visions are rarely implemented due to governance that prioritises the interests of a few over the overall objectives formulated in policy papers. In the medium term, unless appropriate measures are taken, the processes will result in deteriorating productivity of agricultural production and thus trigger accelerated migratory movements to more favourable rural areas or urban centres. The receiving regions, be they urban or rural, will experience increasing pressure on resources and infrastructure and accentuate social problems such as poverty rates and conflict potential besides challenging health and education services (cf. 3.3).

It is apparent that the pattern of transformation does not follow the path of European nations: it is not driven by industrialization, no large-scale urban and non-agricultural employment opportunities develop and there is no depopulation of rural areas as in Europe, where rural areas were transformed into agro-industrial and forest-industrial spaces managed by farmer-entrepreneurs equipped with multiple machines.

The ongoing transformation is so far not sustainable, as natural resources are exploited beyond their capacities to regenerate**, nor is it socially inclusive**, as poorer small scale farmers are excluded from production, diversification and benefits from innovative processes and no adequate alternatives are created for poor urban settlers.

Professionalization of agricultural production and processing of agricultural produce are the key to income generation, to market integration and to increasing the resilience of farmers and local economies alike. Due to growing pressure on natural resources, this professionalization needs to emphasize the importance of sustainable resource management to favour resource regeneration and to halt the degradation processes. In order to set the right framework conditions, financial means can empower farmers and foster their resilience against economic and climate shocks (cf. chapter 5).

4 Scenarios for Structural Transformation until 2030

Policy decisions, institutional set-up, environmental processes, social interaction and economic developments are all drivers of rural transformation. Multiple cause-effect relationships characterize the complex system of rural and urban livelihoods, and many of these relationships work in two directions. This chapter describes a scenario of rural transformation if trends continue as described above (4.1.), and proposes as a desired outlook in form of a socially inclusive and sustainable scenario for 2030 (4.2). The trend analysis (cf. 3) and scenarios will serve as foundation for the recommendations presented in chapter 5.

4.1 "Wahala – Catastrophe": Business as usual scenario for 2030[29]

Many dynamics of change depend on factors that are difficult to influence (such as governance, which was identified as the most active and uncontrollable determinant of rural transformation) and since some dynamics are beyond the reach of short term action (e.g. increased weather variability), it is quite likely that most trends will continue unless concerted action is taken. A business as usual scenario would involve the following:

- *Persistently bad governance*, where well intended initiatives are sacrificed for political and economic benefits of few, resulting in weak implementation of strategies;
- *Persistent decentralization*, but at a slow pace with municipalities receiving gradually more power, but it is unclear whether that will increase the accountability of decision makers and lead to more transparency or whether it will facilitate financial mismanagement and the emergence of local patronage networks;
- *Slight progress in the economic dimension* characterised by overall economic growth, diversification of income sources and slowly increasing non-farm activities, increasing agricultural production;
- *Dramatic deterioration of natural resources* e.g. soil fertility decline, deforestation, and water pollution, leading to *intensified migration* to rural regions offering fertile land and water, or to urban centres and abroad in search for labour opportunities. However, regions of origin remain populated due to continued demographic growth;
- Further *incomplete improvements* in social infrastructure like schools and health centres, in communication and transport infrastructure as well as supporting *infrastructure* like electricity supply and market places;

29 Based on workshop results, interviews and analysis of ongoing trends

- *Divergent trends in social texture*, in the form of a strengthening of the nuclear family and a weakening of village, kinship or clan networks; "urbanization" of values and lifestyles.

Persistently bad governance leads to unequal access to resources, benefits and opportunities

The overall (persisting) phenomenon of bad governance, where well intended and planned initiatives cannot be implemented due to weak institutional or personal capacities or are sacrificed for political and economic benefits of few actors is likely not to change. This continues to result in weak implementation of strategies as they are not sustained by a strong political will. This leads to increasingly unequal access to resources, benefits, and opportunities.

Ambiguous devolution of competences

The decentralization process under way since the late 1990s continues to be simultaneously pushed forward and held back by the central government. Nevertheless, the power of municipalities (organized in the *Association Nationale des Communes du Bénin* - ANCB) is increasing and pressure from decentralised organs leads to continued devolution of power and competences to lower levels of government. Whether this process increases accountability and transparency towards the population and whether planning processes are more in line with the needs and priorities of the population – as should be expected in more participatory and bottom-up planning processes – depends on the willingness, capacity, and resources of local decision makers, on the pressure and interest exerted by the local inhabitants as well as on the watch-dog capacities of local civil society organizations.

Economic growth brings some non-farm employment opportunities but is highly dependent on external markets

Overall economic growth will continue, as some reforms have been launched and seem to be bearing fruits: easier procedures and reduced bureaucracy lead to more economic entrepreneurship, regional integration opens new markets and favours mutual learning. This encouraging atmosphere leads to a moderate creation of new businesses and to the creation of some non-farm employment opportunities in urban areas with less precarious relationships. However, the dependence on external markets for imports of most processed goods and some food products as well as for the export of certain goods (cotton, palm oil) threatens this growth potential, as prices and demand/supply are beyond the reach of national actors.

Professionalization of agriculture cannot transform the livelihoods of the majority of small-scale farmers

Agriculture is moving slowly towards being a more professional, diversified and value producing sector. Overall production is increasing, but despite recent efforts, productivity remains low. Production continues to rely mainly on small scale farmers, who receive moderately improved support in terms of advice, input supply, and financial services, and who have slightly better access to markets through farmers' organizations and better infrastructure. Some agribusinesses have acquired land and employ labourers to work the land. These new actors are starting to change the agricultural landscape and give it an increasingly stronger market orientation. The emerging value chains which produce to the standards demanded by national and international customers have resulted in a better market access for individual farmers and cooperatives. How-

ever, these developments remain too limited in their outreach to transform the livelihoods of the majority of small scale farmers. All the above-mentioned changes are limited in scale so that the implementation of the strategy takes long and remains incomplete as no serious change in budget allocations takes place in the public sector. The services for agriculture and private investments, for instance, stay limited and the sector remains with insufficient support both in numbers and in quality.

High population growth and rising land conflicts reinforce the rural exodus

These slow developments are not sufficient to keep pace with natural population growth – they do not restrain individuals from leaving rural areas in quest of urban employment. Slow improvements in research and extension services as well as in input supply also fall short of facilitating real and resilient adaptation to climate change and increasing weather unpredictability. Since agricultural land is becoming increasingly limited, conflict for land is on the rise, while the installation of a formalized land tenure system is not fast enough to resolve or prevent such conflicts.

Environmental degradation triggers migration and conflicts

The continued environmental degradation and mining of resources – pushed forward by poverty and needs, by bad governance, by particular interests of a few (powerful) beneficiaries, inconsistent control mechanisms and policy implementation – is a trend seriously challenging any positive tendencies identified in other areas. Environmental migration increases, as people from the most-affected regions are forced to seek new homes and engage in economic activities as newcomers, while land speculation continues and no socially inclusive land tenure system exists. This situation bears ample room for conflict and unplanned proliferation of poor settlements in urban and peri-urban areas of prospering towns and cities.

Resource scarcity is reinforced by climate variability and prompts social conflicts

Environmental degradation also affects agricultural productivity – deforestation further reduces shelter belts and accelerates erosion processes; with the destruction or alteration of habitats, biodiversity further decreases – and with it the resilience of natural systems (e.g. biological pest control); water bodies change with deforestation and decreasing soil fertility (e.g. water table, siltation, pollutants from fertilizers), thus altering the habitat for aquatic species and further reducing the potential for fisheries. The changes in climate patterns alter the distribution of rangelands which already leads and will increasingly lead to conflict between pastoralists and farmers, despite all conflict management efforts. The capacities of customary ways of resource management, land distribution and conflict resolution are overstretched. This dynamic carries the risk to squeeze out the weaker user groups, often the most vulnerable small-scale producers (farmers, pastoralists, fishermen) (e.g. grazing rights, passage rights, fishing rights, land acquisitions).

Improved infrastructure facilitates multi-local livelihoods

Slight improvements can be expected for the road network and road maintenance, linking more remote regions to the heartland and linking Benin to all its neighbours with which it has trade relations. These links facilitate mobility and support multi-local livelihoods. Communication is further democratized, with mobile networks allowing phone and internet access even in remote locations and at a decent speed. These road and communication channels foster exchange and

dissemination of information – and with that a further approximation of values sets in urban and rural settings. Modern technology continues to ease the transfer of remittances – income generated abroad or in cities increases its significance for rural livelihoods. Rural electrification, partly based on "green technologies" is improving but still lags far behind the set targets.

Improving social infrastructure with a growing rural-urban gap

Improvements in social infrastructure continue. Whether they keep pace with population growth – especially in peri-urban areas – and anticipate migratory movements, and also whether they are staffed and equipped with resources to perform appropriately may be doubted, but nevertheless a slight improvement is expected. Improved educational levels should, in the long run, contribute to more entrepreneurship in non-farm activities but also in the agricultural sector. However, educational opportunities as well as medical facilities obviously remain better in major urban centres – those aspiring for higher education are thus likely to migrate, at least temporarily in a quest for more career opportunities.

Fast urbanisation with increasing social and political tension as well as environmental and health risks

The improved information base increasingly incites people to move away if they consider other locations more attractive, be it for economic opportunities or for lifestyle choices. Rural areas with better chances for profitable production receive more migrants (temporary or permanent) and urbanized centres in those favourable rural areas attract population in search of markets or artisanal professions. As mentioned above, land-use and spatial planning capacities are currently underdeveloped, so urbanization is likely to result in agglomerations unable to cater for the needs of their growing populations, with social consequences such as tensions and/or conflicts between different groups and also undesirable environmental impacts (e.g. waste dumping, water source contamination, and the spread of water-borne diseases in the less fortunate neighbourhoods). Social and political tensions may be contained by the stable socio-political environment of which Benin has been benefiting since independence, but environmental and health risks will increase.

All in all, improvements are outweighed by population growth, lack of good governance and environmental degradation

To conclude, in a business-as-usual scenario, slight economic, institutional and social improvements are outweighed by population growth, a lack of good governance capacities, and the consequences of environmental degradation. The rural transformation in this scenario is socially exclusive and environmentally unsustainable. In the words of one respondent: "*if trends continue unchanged, we are heading straight for the wall*"[30].

30 "*Si ça continue comme ça, on va droit dans le mur*" (Int16). Similar catastrophic visions were expressed in many – but not all – interviews: "*if no action is taken we are heading for catastrophe*" (e.g. Int18/20/22/41/51/52/57/63/65).

4.2 "Alafia – Happiness": Inclusive and sustainable scenario 2030[31]

The Alafia scenario describes a best case within a certain probability space until 2030, if action is taken with regard to sustainable use of natural resources and increased agricultural productivity as a backbone of pro-poor economic development. It drafts a situational analysis of socially inclusive and environmentally sustainable rural transformation, comprising all factors of the developed systems and paying special attention to their mutual influences and interactions:

The **regulations and laws** referring to the management of natural resources and land tenure are **reinforced**, disseminated, executed and their compliance is under control. In combination with **inclusive financing methods** and easy access to adapted credits for small-scale farmers, they increasingly adopt practices of sustainable land use. The **more serious conservation of forests, integrated water-basin management and soil moisture conserving agricultural practices** improve local microclimates – which in turn improves the hygrometry of soil. This favours a higher productivity and has a positive feedback on water resources. In addition, the conservation of biodiversity furthers the phyto-sanitary control and contributes to **higher agricultural productivity** while reducing the costs for (and environmental impacts of) pesticides. The increased productivity of small scale farmers **improves access to the market** for large segments of the population because of more surplus production per hectare and reduced transport costs per unit of a product brought to the market (scale effect).[32] Staple food prices remain stable (if international food prices develop concurrently), thus **granting access to sufficient quality foodstuffs** for the more deprived urban population segments.

The **sustainable increase of agricultural productivity** fosters an increase of production as a result of growing demand and stable prices, thus **income of the rural population increases**. This situation enhances the solvency of the producers and **facilitates access to microfinance.** Financial institutions diversify their offers and adapt to the needs of agricultural producers and rural entrepreneurs. This reinforces the factors of production and in turn the profitability of the activities. Incomes allow investments in machinery and equipment. This can make the produce more competitive on the markets. The mobilization of resources due to loans also decreases the obligation to sell under unfavourable conditions (e.g. when prices are lowest) and thus further facilitates more informed and strategic marketing decisions – provided decentral storage facilities are maintained and further developed to prevent post-harvest losses.

Improved market access entails an **accessibility of quality inputs** and an opening up of production areas which allows a valorisation of their production. In consequence, the income of these farmers increases further. Improved market access and **measures for professionalization of the sector**, e.g. capacity development by extension services, allow the timely and appropriate application of fertilizers and pesticides. This further contributes to a **sustainable increase in soil productivity** and a reduced leaching of chemicals into water bodies.

31 The scenario presented here was partly developed during the scenario workshop. Information is also derived from the interviews (cf. Annex 8.5. sample interview guide: question "vision 2030").

32 The scale effect is one important component to improve market access. Means of transport, marketing cooperatives or other forms of organizations to physically access markets are necessary complementary components.

Measures of **restoration of degraded land** to improve soil structure, moisture conservation capacity and contents of soil organic matter lead to **increased land availability**, taking pressure off the land market. In turn, overall **migration is reduced** as the land is less degraded than before and fewer people are forced to leave their accustomed land. A system securing land tenure accompanies these measures, so that the value increase of a given plot of land (due to its higher productivity) does not result in the eviction of those small-scale farmers who have less financial, social or political leverage. This **increased land tenure security** further encourages the investment to conserve the productivity of the land in the long term.

More income from increased productivity further favours **diversification of revenues** (crops, processing, and services) as well as investments to improve living conditions, education and health, thereby contributing to long term well-being of families.

Reduced migratory dynamics make municipal planning easier. Natural demographic increase remains high at 3.5%, but social services and other infrastructure developments (roads, electrification, water supply and sanitation) can take this increase and migratory movements into account. Urbanization trends of rural centres are continuing but happen within well-designed land-use plans, thereby ensuring socially inclusive urban growth with lower environmental impacts. The emergence of more small urban centres with accompanying infrastructure and markets further **reduces the disparities between urban and rural regions** in terms of non-farm job opportunities and access to commodities and services so far only available in major centres. However, social interaction in rural areas is also affected by these trends. "Traditional" social patterns are changing towards **stronger cohesion within the nuclear family** and more reliance on **government-supported social security systems**.

The **urbanization of smaller centres** also reduces the pressure on historical centres of growth – the agglomerations along the southern coast. In a less-pressurized environment, entrepreneurship in towns and cities can evolve more easily and create employment opportunities for the urban youth. This represents a pull factor for rural population in search of alternative opportunities to agriculture and rural lifestyle, but now in a situation where the absorption capacity of the non-farm sectors has increased. Urban-rural linkages are intensified, and remittances from (now more secure) urban employment become a factor for rural investment and growth.

Increased local purchasing power creates more ways to **access local/decentralized energy sources**. This situation is supported by the construction of small dams meeting social and environmental standards and the development of renewable sources of energy. The access, availability and reliability of these is improved. The learning environment for children improves and respiratory diseases decrease with increasing household lighting and clean combustion sources. Thanks to the access to equipment and technology of production (mini-processing) as well as more reliable energy supplies there is an **increase of value addition**: more agricultural products are processed in more locations, which also **increases non-farm employment opportunities**. The increased purchasing power also has repercussions on urban economic developments: products and services from urban centres are in greater demand, thus further increasing non-farm employment opportunities due to labour needs from urban service providers and producers. **New value chains develop** and existing ones are stabilized, which affords better control of the market and the establishment of networks of producers and of inter-branch associations (inter-professions).

The **organization in dialogue platforms** (local organisations along the value chains) leads to a strengthening of the capacity of producers and other actors along the chain to **influence** and exert pressure (lobbying) on the **agricultural policy and governance**. In this way, the agricultural policy takes the needs of the actors more into account and thus becomes more inclusive: producers and other actors are increasingly involved in taking decisions. In consequence, the agricultural orientation law is targeted at the needs of the entire population.

There is increased influence by the actors on **research and development**. As a consequence, more intelligent, **innovative and appropriate agriculture** is developed and popularized with the assistance of these R&D institutions. It is adopted by small scale producers with positive feedback effects on their productivity and income. This intelligent agriculture is more resilient and adapted to climate variability by selecting the most appropriate crop varieties and crop combinations for the soil and climatic zones. High-value crops such as vegetables are produced with (reasonably) cheap, small scale and water-conserving irrigation systems combining rain- and floodwater retention with groundwater pumps. Innovation further encourages the modernization of production and running the farms as businesses, a process closely driven and monitored by empowered extension services.

An expanded sector of **more diverse and institutionalized community-based organization** (of producers and consumers; with watch-dog functions) and **more participation in governance** makes the latter more socially inclusive, as more segments of the population now have a political voice. One observes the involvement of actors in the elaboration of Community Development Plans. Land tenure systems are accepted by all, because they are based on acknowledged customary or judiciary rights, and this results in an augmented security, as well as a better valorisation and management of natural resources.

Summary

A sustainable intensification enabled by inclusive access to financial services, new sources of revenue and resulting in improvement of living conditions reduces the direct pressure on natural resources (e.g. deforestation for charcoal). Together with higher productivity this also influences demographic dynamics: a rural exodus is avoided and the rural population is stabilized. Simultaneously, people from regions with more degraded lands or fewer economic opportunities are attracted, thus increasing the number of labourers in farm and non-farm jobs as well as the number of consumers and market opportunities. All this contributes to a revolution of economic activity in the rural territory – and young people with better education and more economic options have the opportunity to become a force for development.

5 Recommendations for a move towards a more sustainable and socially inclusive transformation

Previous chapters have shown that socio-economic transformation processes in rural Benin are complex and associated trends are highly interrelated. In order to provide recommendations, it is therefore important to recall the character of rural transformation:

- Rural transformation is a long-term and complex process and is highly influenced by demographic pressure and economic development;
- Tackling rural transformation consequently means long term engagement, addressing not only agriculture but the whole economy including its institutional framework.

There are many ways in which rural transformation can evolve. There are an array of factors influencing it, and results will only be visible in the long-term. However, in order to shape rural transformation in a more sustainable and socially inclusive way, various intervention areas have to go hand in hand. Any measures should therefore directly contribute to one or more of the following areas and must be adapted according to regional differences and agro-ecological zones:

1. A more sustainable use of natural resources with focus on a sustainable intensification of agricultural production. Efforts in this area are context-specific and have to be adaptive to the current state of natural resources. They require a multi-level approach.
2. An increased number of off-farm opportunities for rural households with the objective to increase options to raise and diversify their income sources.
3. Better access for small scale farmers and vulnerable groups to public services, infrastructure, information, and markets. Efforts contributing to increased access for rural households are highly related to the capacities of rural households to demand policy implementation.
4. Self-organization of rural farm households to overcome market failures in rural areas in an inclusive way. Farmers' organizations promote capacities to participate in policy-making.
5. Secured access to land to sustain livelihoods in rural areas.

It is evident that good governance is the key for the long-term success of all proposed interventions and that it thus needs the continued attention of technical and financial partners.

The specific entry points for Benin have been developed based on the results of the scenario building workshop in Cotonou and qualitative interviews conducted in Borgou and Ouémé-Plateau and further discussed and validated during two workshops to discuss the results.

During the workshop, the main directions of change in rural development in Benin as well as the factors influencing rural transformation were discussed (cf. 3). The three most critical factors[33] for inclusive and sustainable rural transformation were, 'Management of natural resources, 'Agricultural productivity' and 'Access to credit in rural regions. The following recommendations (cf. 5.1

33 In the terminology of scenario-building, critical factors have much influence and are highly influenceable, hence move the system most; changing them, will exert effects on rural transformation but the potential feedback loops need to be carefully assessed: cf. 2.2, Figure 4).

to 5.3) therefore focus on these factors. Accompanying measures in non-farm sectors emerged as crucial in subsequent discussions (cf. 5.4.1), and the transversal issue of governance was highlighted in the last sessions (cf. 5.4.3). Although treated separately, there are strong interrelations between the factors themselves as well as between the proposed interventions.

Key points of the following recommendations are:

- **Sustainable increase of agricultural productivity** is the central lever to influence rural transformation in Benin. Many factors influence productivity, such as soil fertility and water, access to agricultural inputs, access to financial services, and dissemination of results from research and development. **Environmental intensification** can sustainably overcome soil fertility issues. It must be based on a broad strategy addressing different issues (e.g. soil nutrients, soil organic matter, ploughing or non-ploughing, depending on the specific soil and topographic conditions, as well as water retention capacities, erosion control, etc.) and levels (farm, extension services, input suppliers, policy makers) and should be implemented in cooperation with various partners – e.g. by pursuing a value chain approach with particular attention to disadvantaged groups. Agricultural productivity and sustainable natural resource management are closely linked (cf. 5.2).

- **Sustainable management of natural resources** is the other most important realm of intervention on farm and regional level. Efforts in this area are context-specific and should be adaptive to the state of natural resources. They require a multi-level approach. To be sustainable, all resources and their interdependencies have to be considered: soil and pasture, water, forest as well as (agro)biodiversity. Above all, the measures should be adapted to the specific natural landscape and its climatic and resource conditions. To ensure the sustainability of interventions, the local communities must be included in decision making processes and management. This fosters ownership of the resources and supports accountability for sustainable management (cf. 5.1).

- **Access to services in rural areas** – including access for the poor – is essential to enable the implementation of sustainable and socially inclusive practices in the management of natural resources and agriculture. Prerequisites for the realization of agricultural and other income generating activities are: Access to agricultural inputs (seeds, organic fertilizers and manure; where necessary mineral fertilizer and pesticides in combination with training); access to information and knowledge (e.g. about comprehensive pest management strategies, soil fertility enhancement measures, crop rotation, composting etc.); access to social services (education, health care); and access to **credit and financial services** . Decentralized financial services and appropriate financial products need to be available to farmers and innovators (for crop cultivation, agro-food processing). Expansion of the financial sector has to go hand in hand with campaigns for financial literacy and business management to prevent indebtedness. A strong control of the financial sector is compulsory (e.g. ethical standards) to reduce the risk of uncritical recruitment of customers. Besides these services, access to land and securing of land titles is of the utmost importance to foster ownership (cf. 5.3).

- In addition to the three main factors identified, we consider **accompanying measures in the non-farm sectors** as crucial for rural transformation (cf. 5.4.1). Off-farm income opportunities have to be created: firstly to decrease the dependency on agriculture and thus

lower vulnerability against unforeseen climate-induced shocks. Secondly, to create possibilities for a stepping-out of agriculture – to account for the growing population and to provide options for diversification strategies. Poverty is one of the main reasons for resource overexploitation. Without unlocking new income sources, natural resources will draw on as a fallback strategy especially by poor rural households.

- **Better governance at all levels** is the key to the success of any intervention, as governance failures are the central obstacle to implementation of seemingly coherent plans and programmes. Continued policy dialogue, capacity development for the different levels of administration and support in process monitoring to improve the efficiency of well-intended government programmes as well as strengthening of the role of civil society as advocates of the population need to accompany the specific recommendations. Even though the issue features in the recommendations above, some ideas are presented separately to highlight the importance of the issue.[34]

Since rural transformation is a complex and long-term process, the recommendations address a broad variety of issues and seek long-term impacts. **Long term engagement** along a **comprehensive yet flexible strategy** is necessary in order to deliver a relevant contribution to the transformation processes. Flexibility includes mechanisms to evaluate and re-calibrate the support according to successes and challenges.

To move towards social inclusion, the proposed measures must **target the different categories of small scale farmers**. Thus, special attention has to be paid to an approach that also reaches the unorganized, very poor and remote farmers as well as women and the youth.

Above all, measures need to be **adapted to the local context** and will require more detailed, region-specific assessments. Many of the recommendations already form part of strategies and interventions supported by international partners such as the German government and/or are part of the Beninese PSRSA strategy – which makes the implementation of the proposed interventions more feasible and probable. An analysis of why some of them have so far failed to yield large-scale effects is crucial for their intensification or adaptation.

5.1 Sustainable Management of Natural Resources

Sustainable resource management is central to provide future generations with resources and services for decent livelihoods. It is at the centre of scenario described in 4.2 and has been identified as the most critical leverage to orient rural transformation in the desired way. As the trends for most natural resources show rapid deterioration, and since these trends are being exacerbated by climate change (cf. 3.1, 4.2), four broad fields of interventions require urgent action:

The promotion of **1) sustainable agricultural practices adapted to climate change** is key to maintain soil fertility and productivity in the changing environmental conditions. A lack of in-

34 See a recent research on poverty reduction effects of different development intervention strategies finding (to no surprise) that "incremental improvements in governance effectiveness over the SDG period have a greater impact on poverty reduction"(Aucoin & Donnenfeld, 2016).

vestment capital for mechanization, dysfunctional input supply and/or non-affordable inputs for small scale farmers calls for a rethinking of conventional approaches to crop production.

Mineral fertilizer, while having proved its value in modern, conventional agriculture, does not replenish soil organic matter and thus does not sustainably reinvigorate soil structure. It is therefore no remedy against soil erosion. In order to have sustainable, soil conserving agriculture, farmers need to adopt more organic approaches like minimum tillage, crop rotation, mulching, composting, green manure, planting of legumes, etc. Such measures will improve the hydrologic balance in the soils and pave the ground for additional, targeted application of mineral fertilizer specifically adapted to the soil and crop requirements.

Practices of sustainable agriculture can contribute to **2) rehabilitation of degraded land.** Additional agronomic, structural or management measures might be necessary, and an elaboration and implementation of land use plans will play a crucial role, eventually improving economic opportunities in disfavoured regions.

3) Sustainable forest management and **4) sustainable water management** (integrated river basin management, rain water harvesting, groundwater recharge systems, sustainable, pro-poor irrigation schemes, etc.) both call for integrative regional approaches with co-management by adjacent populations and users to ensure sustainability and long-term functioning and benefits, e.g. fishing. Natural resources should be managed in the Nexus Approach by integrating management and governance across sectors and scales (United Nations University, n.d.).

Certain framework conditions are indispensable for the interventions in NRM to work:

- Extension services, awareness raising and capacity development to actively enable the population to implement sustainable practices;
- **Co-management schemes for management** to increase ownership and foster accountability;
- **Cooperation of line ministries and institutions** to fully address the inter-sectorial character of natural resources;
- **Law enforcement** to build up on existing rules and regulations and guarantee implementation and compliance of all user groups.

A supplementary field of intervention which is not directly related to natural resources but crucial for the objectives of sustainable management to be acceptable and implemented is the promotion of **alternative income generating activities**. As mentioned in 3.4., overexploitation of resources is often a consequence of poverty. If no alternatives are offered, broad implementation cannot be achieved or the sustainability of interventions is threatened. The recommendations are summarized in the following table and further concretized on the subsequent pages.

Table 6: Overview of intervention areas for sustainable natural resource management

Area of Intervention	Focus	Local entry points	Links to other areas of interventions
Sustainable agricultural practices adapted to climate change	Promotion of ▪ research into and availability of varieties adapted to increasing climate variability ▪ organic inputs ▪ climate smart agriculture and soil moisture conservation practices (e.g. agroforestry and agro-silvo-pastoralism) ▪ crop diversification ▪ small scale irrigation technologies (where appropriate) ▪ meteorological services for agriculture (weather forecasts)	*National strategies* ▪ NAPA ▪ PSRSA *Potential local partners* ▪ CARDER ▪ Universities ▪ Research centres (INRAB, CePED, LARES…) ▪ NGOs (e.g. ECO-Benin, CREDI-ONG, IDID, GERME, Songhai)	▪ Extension services/ awareness raising ▪ Cooperation of line ministries and institutions ▪ Access to credits ▪ Research and Development ▪ Land tenure security
Rehabilitation of degraded land and prevention of further degradation	Promotion of ▪ crop rotation ▪ green manure ▪ land use planning and the implementation of land use plans and land rights ▪ alternative income sources	*National strategies* ▪ Land policy ▪ UNCCD *Potential local partners* ▪ CARDER ▪ Universities ▪ Research centres (INRAB, CePED, LARES…) ▪ NGOs (e.g. ECO-Benin, CREDI-ONG, IDID, GERME, Songhai)	▪ Extension services/ awareness raising ▪ Cooperation of line ministries and institutions ▪ Co-management ▪ Non-farm income sources

Sustainable Forest Management	Promotion of ▪ afforestation (financing, monitoring) ▪ non-timber forest products (NTFP) ▪ improved stoves to reduce combustion of charcoal and wood ▪ alternative income sources for charcoal producers an ▪ co-management of forests For the long term ▪ development of a substitution strategy for charcoal as main urban cooking fuel	*National strategies* ▪ Stratégie National de Développement Durable (MEHU 2005) ▪ Reforestation initiatives *Potential local partners* ▪ Local forestry department ▪ NGOs in resource management (e.g. ECO-Benin)	▪ Extension services/ awareness raising ▪ Law enforcement (compliance with rules/ regulations) ▪ Job creation ▪ Market infrastructure and storage facilities (for fuels) ▪ Research & development ▪ Land use plans ▪ National energy plan
Sustainable Water Management	Promotion of ▪ Integrated Water Resource Management and Integrated River Basin Management as an overall guiding practice (participatory management plans) ▪ Disaster Risk Reduction programmes (storm, drought, and flooding) ▪ erosion and sediment control ▪ monitoring of water quality and quantity	*National strategies* ▪ Stratégie Nationale de l'Approvisionnement en Eau Potable en Milieu Rural 05-15 (DGEau 2005) ▪ Stratégie National de Développement Durable (MEHU 2005) *Potential local partners* ▪ Provincial Water Authorities ▪ PNE ▪ WASCAL ▪ Local water user groups	▪ Cooperation of line ministries and institutions ▪ Co-management schemes ▪ Land use plans
Cross-cutting issues: extension services & awareness raising, co-management, cooperation of line ministries and institutions, law enforcement Source: own elaboration			

Specification of proposed recommendations and interventions

The interventions/measures introduced below with black bullet points represent strategic orientations (areas of intervention), while those introduced with hollow bullets describe the focus the interventions should have. The boxes at the end of most sections are concrete recommendations for action, often directed at potential partners. As in Table 5, they do not represent an exhaustive list of potential partners but show first entry points.

- Promote **sustainable agricultural practices adapted to climate change:** these include the introduction and promotion of alternative practices like agro-silvo-pastoralism and agro-forestry, sustainable soil management (mulching, composting, legume, crop rotation and diversification) as well as the dissemination of important information and benefit sharing regimes among farmers and pastoralists. Here it is essential to:
    - Ensure flexible availability of inputs in appropriate quantities and with sufficient instructions for use;
    - Ensure affordable availability of seeds for crop diversification and adapted varieties;
    - Encourage the use of organic manure (green manure, animal dung) by awareness raising. Consider the issue of limited availability of green manure/biomass in semi-arid regions and that the lack of stables for livestock as well as the divide between pastoralists and agriculturalists limits the availability of animal dung;
    - Demonstrate and disseminate practices to conserve soil moisture, e.g. mulch, cover crops, or green manure;
    - Demonstrate, support and disseminate low cost small scale irrigation technologies where ecologically suitable and where profitable, accompanied by extension services and adequate financing mechanisms;
    - Provide meteorological forecasts and backcasts to inform farmers about soil water content according to previous rainfall, and advise on earlier or delayed seeding.

Recommendations for action

- Close collaboration with CARDER in the development of the approaches
- Harmonization of different donor initiatives in the field of agriculture and natural resource management to better exploit synergies
- Promotion of adherence of universities, governmental and private research institutions as well as farmers' representatives to best practice networks like canafrica

- Develop and put into practice concepts to **rehabilitate degraded land areas and to prevent further degradation**, which can include:
    - Sensitization for the importance and dissemination of crop rotation techniques and other ways of conserving soil-fertility;
    - Promotion of green manure (accompanied by adequate seed supply) instead of/to complement chemical products to improve soil structure, suppress weeds, add nutrients and control pests (where climatic conditions allow);

- Improved enforcement of land use plans and land rights;
- Develop benefit-sharing regimes for farmers and pastoralists to use dung and field residues and at the same time reduce conflict potentials;
- Promotion of non-agricultural income sources as alternatives to crop cultivation.

Concrete recommendations for action

- Facilitation of information and collaboration meetings of the different involved sector ministries

- Contribute to **sustainable forest management** by supporting **forestation measures** and the **replacement of charcoal** as the main cooking fuel in urban areas in order to reduce the pressure on standing forests. Charcoal substitution requires looking into safe and affordable fuel alternatives and alternative income sources for charcoal producers. Co-management of forests by local communities and forest authorities is to be strengthened.

  - Awareness creation/raising or sensitization for the importance of forests and afforestation measures and chances of exploitation of NTFP;
  - Assessment of co-management of forest resources countrywide and further promotion of good practices;
  - Allocation of financial resources to the implementation and monitoring of reforestation initiatives that so far only exist on paper;
  - Stimulation of research on fuels, fuel efficiency and financing models, which can be conducted in cooperation with other strongly deforested countries.

Concrete recommendations for action

- Sensitization and training projects in cooperation with NGOs and CARDER
- Lobbying for more budget allocation to reforestation and cooking fuel research
- For NTFP: Scaling up of seasonal mushroom harvesting by offering training and storage and processing facilities

- Contribute to **sustainable water management** by promoting **Integrated Watershed Management** comprising all relevant stakeholders from government, business, and civil society:

  - Development of participatory management plans to control catchments and water use (water licencing, water storage tanks, etc.; create regulations in river water user associations);
  - Development of good practices to manage storm water and floods;
  - Dissemination of good practices for erosion and sediment control;
  - Improvement of land planning;
  - Installation of monitoring and evaluation systems.

Concrete recommendations for action

- Facilitation of stakeholder meetings, comprising riparian populations, forestry, water and agricultural departments

Good practice in resource management in Benin

- **Co-management of resources**, of responsibilities, of plan implementation. This happens ideally in arrangements between three parties or more to increase the mutual surveillance effect. The local population is in the driver seat as they are most concerned by depletion of resources, e.g. Pendjari National Park co-management set up by GTZ in early 2000;
- (Legal) **strengthening of village associations and other local stakeholder groups** such as hunters and farmers to ensure that local users have a voice and that plans respect local interests;
- **Providing (quickly) tangible benefits** for local actors from the new arrangements, e.g. by strengthening some sectors of production, as in Pendjari via the promotion of organic cotton within a network for marketing; or by land set aside for long term use (zone for economic use) under specific conditions.

Issue: Ensuring that external interests, e.g. by governmental structures, are contained so that functioning arrangements are not reversed when international support ends.

5.2 Sustainable intensification and professionalization of the agricultural sector

The following recommendations are based on the analysis that many small-scale farmers in Benin have the potential to increase productivity, while only a few of them have good chances to quit agriculture for good. In either case the prospect should be an improvement of their structural socio-economic situation in the medium or long term.

The key to move towards future food and nutrition security for a growing population while simultaneously conserving natural resources is **sustainable intensification of agricultural production**. This means that productivity (per land unit, input and/or labour) is increased while negative consequences for the environment remain at the lowest level possible (own definition). Sustainable intensification helps to shape rural transformation in a more socially inclusive way. It ensures productivity of small-scale farmers in the long term and thus contributes to secured rural livelihoods and household revenues. The pressure to migrate is reduced, even if lifestyle choices and diversification strategies will continue to push for multi-local or circular migration livelihood strategies.

The sustainable intensification must go hand in hand with a **professionalization of the agricultural sector**, especially of small scale farmers. Capacity development of extension services and training centres is a precondition for a coherent dissemination of good practices. This is vital if

the needs of an increasing population are to be met while altering the reputation of agriculture from a mere survival strategy to a viable business opportunity.

The intensification of production and resulting economic benefits (income, potential for processing) alone will most probably not be sufficient to provide opportunities and secure revenues for an increasing population. Urbanization will continue, and with that the **need for non-farm employment** (cf.5.4). The increased productivity and professionalization of agriculture should be strategically connected to **open opportunities in food and fibre processing** and marketing of higher value products. Urbanization also has to be accompanied by stronger urban and land-use planning, including urban farming approaches wherever these are appropriate.

These intensification processes need to be accompanied by supportive services and by conducive framework conditions (infrastructure, laws, and regulations, e.g. for land tenure). They have to be adapted for the majority of producers if they are to be inclusive, which can be best achieved by a stronger organization and participation of farmers.

In order to promote sustainable intensification, it is crucial to support interventions at different levels. Table 7 gives an overview of recommendations and proposed interventions. This is followed by a more detailed description/concretion of selected interventions.

Table 7: Overview of intervention areas for sustainable intensification and professionalization of the agricultural sector			
Area of Intervention	**Focus**	**Local entry points**	**Links with other areas of intervention**
Sustainable intensification	▪ Develop environmentally friendly production standards (Good Agricultural Practices – GAPs) ▪ Further develop environmentally friendly production techniques (e.g. organic production, climate smart agriculture, Integrated Pest Management) ▪ Mechanization, Diversification, Storage ▪ Subsidies (e.g. e-voucher) not only for fertilizers but also for other inputs (lime?) ▪ Support decentralized/local water infrastructure, regulation and organization of small scale farmers	*National strategies* ▪ PSRSA ▪ Land code *Partenaires locaux potentiels* ▪ INRAB ▪ FUPRO	▪ Land rights ▪ Policy formulation and law enforcement ▪ Financial Services
Value chain approach	▪ Promote inclusive economic and environmentally sustainable potentials of VCs in the strategic key crop sectors ▪ Support value chain development (Promote market and actor analysis; facilitate exchange and cooperation of all actors along the VC) ▪ Focus on poorer and marginalized groups, women (e.g. processing), youth (e.g. transport), consider farmers' needs and capacities	*National strategies* ▪ PSRSA ▪ Promotion strategy for 12 crops/ value chains *Partenaires locaux potentiels* ▪ UPC ▪ FUPRO ▪ PNOPPA	▪ Policy implementation ▪ Infrastructure development ▪ Financial services
Extension services	▪ Develop capacities of CARDER staff (farming-as-business, NRM, farmers' organizations etc.) ▪ Adjust training, messages and materials to GAPs ▪ Strengthen link between R&D, CARDER and farmers ▪ Monitoring and review effects of reforms ▪ Lobby for more budget allocation for extension services	*National strategies* ▪ PSRSA *Partenaires locaux potentiels* ▪ CARDER ▪ UPC	▪ Allocate governmental resources

Producer organizations	▪ Support organizational development (administration, financing, business plans, accounting, lobbying etc.) ▪ Strengthen organizational capacities of poorer actors ▪ Encourage dialogue between producers with all stakeholders along the VC ▪ Organizational support (finances, personnel)	*National strategies* ▪ PSRSA *Potential local partners* ▪ CARDER ▪ UPC	▪ Extension services/ training ▪ Financial services
Private Sector Promotion	▪ Strengthen SMEs along the VC: support for production, processing, service provision ▪ Support the disengagement of the state from input supply; install safeguards against exclusive and unsustainable practices (quality control, prices) ▪ Contribute to ensured input supply by promoting SME in business installation, demand evaluation, quality control, and impact assessment ▪ Encourage development of "pro-poor" services along VC (e.g. machine rings) ▪ Improve access to markets	*National strategies* ▪ SCRP *Potential local partners* ▪ CePED	▪ Extension services/ training ▪ Financial services ▪ Infrastructure
Research and Development	▪ Facilitate adapted innovation and applied research (needs assessments, farmers' participation) ▪ Support research based extension (dissemination strategy) ▪ Support diffusion of appropriate technologies	*National strategies* ▪ PSRSA *Potential local partners* ▪ INRAB ▪ Universities ▪ CARDER	▪ Extension services
Land tenure system	▪ Contribute to monitoring of the roll-out of the new land code: verify the functioning of safe-guards against land speculation and misuse of agricultural land ▪ Support the cadastre ▪ Support the designation of pastoral corridors	*National strategies* ▪ Code Foncier *Potential local partners* ▪ ANCB	▪ Financial Services
Cross-cutting issues: extension services, financial services, infrastructure development, land tenure security Source: own elaboration			

Concretion of proposed recommendations/interventions

The interventions/measures introduced with bullet points represent strategic orientations, while those highlighted with arrows and set in a textbox at the end of most sections are concrete recommendations for action, often pointing at potential partners.

- Contribute **to sustainable intensification to increase agricultural productivity**
  - Development of **environmentally friendly production standards** – Good Agricultural Practices (GAPs) which consider and recommend sustainable and environmentally-friendly production techniques (see next point) for various crops;
  - Introduction or development of **environmentally friendly production techniques** which form part of production standards (GAPs) and are locally and socially adapted as well as economically viable. Techniques to be recommended should be based on principles of conservation agriculture, and adaptation measures to climate change (see above), Integrated Pest Management etc. Measures include the use of organic material and / or green manure to protect soil from further degradation and to increase soil fertility and moisture availability. The recommended techniques have to be adapted to the needs as well as living and production conditions, which means they need to be feasible, affordable and economically viable for the farmers, mainly the small-scale producers;
  - Support **decentralized/local water management infrastructure and organization** to extend the production period and to be less dependent on rain fall and thus decrease the impact of drought or flooding. To that end, small-scale water retention and irrigation/drainage infrastructure should be installed where appropriate, e.g. for high value crops; in valley-bottoms or vegetable gardens. This includes support to the organization of water user groups (rules, tasks, maintenance, contributions, fees etc.).

Recommendations for action

- Work with all relevant actors (MAEP, INRAB, CARDER, FUPRO etc.) on guidelines for GAP as the basis for training and advice of extension workers and producers and for better dissemination of such techniques
- Cooperate with local NGOs with years of experience in small scale farmer promotion with environmentally sustainable cultivation techniques to generate greater outreach
- Encourage institutionalization of exchange between R&D, CARDER and these NGOs to seek synergies and mutual learning and to reach those farmers that are not in close proximity to the NGOs
- Assess and build on experiences from Atacora and Ouémé for water retention and small scale irrigation

- Further promote the **value chain approach**
  - Exploit the **inclusive economic and sustainable potentials of value chain development** in the strategic key crop sectors/value chains. This can be best achieved by:
    a) Ensuring the involvement of small scale farmers by selecting and promoting crops produced by them and contributing to food security (e.g. staple crops) and nutrition (e.g. vegetables) or by supporting small-scale farmer groups to strengthen their capabilities and capacities;
    b) Where possible for the specific crops, focusing the support of value chains on poorer and marginalized regions;
    c) Identifying opportunities for the involvement of women or youth along the value chains, e.g. in the processing (often women) or transport and storage (youth) of products;
    d) Considering farmers' needs and capacities (costs, manpower etc.) as well as environmental specificities while introducing (new) technologies;
    e) Exploiting opportunities to sustainably shape the support to value chains, and develop and introduce environmentally friendly production standards (e.g. guidelines on the use fertilizer and pesticides).
  - Support to **value chain development** by supporting the responsible entities in:
    a) Conducting/finalizing a comprehensive analysis for the promoted value chains;
    b) Identifying (map) relevant actors (and their functions and relations), marketing channels, markets, needed and delivered services etc.;
    c) Determining potentials and bottlenecks along the value chains as a base for a VC development/upgrading strategy[35].

Concrete recommendations for action

- Start with value chains that are most promising and developed (shea nut, pineapple) and support staple food value chains to enhance food security: value chain support needs to be based on market analysis (demand side and potentials, competition) followed by value chain analysis to identify strength and potentials, and thus leverage points for measures resulting in the development of a chain development strategy
- Assess the potential for livestock and fishery related value chains to support often poor fishermen and pastoralists. Cattle rearing, for example, can support the production and use of organic manure
- Evaluate whether support for organic cotton, cashew and palm oil VCs is promising (economically, socially, environmentally) and how best they can be optimized
- Contribute (in coordination with other PTF) to a functional standardization and quality

35 This strategy should identify concrete measures for specific value chains (e.g. processing options) or for the agricultural sector in general (e.g. input supply sector). Measures concerning strengthening of private sector, extension and financial services or support to producer organizations are treated separately below.

control entity, amongst others to support and monitor quality assurance systems along promoted VCs

- **Strengthen extension services** so that they can promote professional, market-oriented agricultural practices with diversified high yields (adapted to the agro-ecological regions) while ensuring soil fertility conservation and adaptation to climate variability. These promoted agricultural practices need to have a ratio workload/capital/input vs. yield/output/revenue taking into consideration the availability of workforce, energy, and technology of the local context in order to be acceptable to farmers. Measures include:
  - Further **develop capacities of CARDER staff** to respond to market orientation and modernization of agriculture: training (of trainers) of extension staff in Good Agricultural Practices (GAP) for all relevant crops as basis for advice to farmers, with training infarming as a business, management of natural resources, organization of farmers, and accessing financial services. This would include the production and dissemination of training materials (e.g. on Integrated Pest Management);
  - Review and, if necessary, **adjust** economic and environmental considerations in the messages and **materials propagated by CARDER** according to developed GAPs (e.g. dosage and timing of fertilizers and pesticides; intercropping; crop rotation and (enriched) fallows);
  - Strengthen the link between **R&D, extension officers and farmers**;
  - Strengthening the **monitoring and review of extension services**;
  - Lobby for augmenting government **resources directed to extension services** (governance) to assure capacity development measures and facilitate mobility of extension officers to be enabled to provide advice in the field.

Concrete recommendations for action

- Work with the ministry on a strategy to improve the services of CARDER
- Lobby for more budget allocations for agriculture outside the cotton sector

- Strengthen the **organizational capacities of agricultural producers** to fully exploit the advantages of small-scale farmer cooperatives or other types of farmers' organizations in order to a) facilitate access to inputs and to markets; b) influence decision making and increase the negotiating power of small scale farmers; c) optimize sharing of experience and dissemination of innovation. A high level of organization and the establishment of strong links between actors are particularly important for a good functioning of value chains.
  - Support famers' organizations with **organizational development measures** (administration, financing, business plans, accounting, lobbying etc.) and with specific capacity development measures (training in standards, environmentally friendly production techniques, etc.);

- Support for the **organizational capacities of poorer actors/small scale farmers** along value chains for more equitable negotiations and benefit distribution;
- For organizations within promoted crop sectors/value chains: support for the **regular exchange and cooperation of producers with all (other) stakeholders along the VC** (regular meetings, dialogue platforms, interprofessions) to ensure the vertical and horizontal chain coordination;
- **Organizational support** to platforms of interaction and orientation within value chains (finances, personnel).

Recommendation for action

- Cooperate with existing structures like UPC (municipal producers' union), FUPRO, PNOPPA to see how the needs and opinions at the grass roots can be given more consideration

- **Strengthen the role of the private sector along value chains** so that enterprises/farms improve their businesses while the supply of (controlled) quality inputs throughout the country and the delivery of services along the value chains is ensured: also the development of transport, infrastructure (e.g. storage, cool chains), quality infrastructure, processing and marketing of certain products. Specific steps are:

  - **Promote development of SME for production, processing or service provision** along VCs (where appropriate support the establishment of contracts between enterprises and small scale producer organizations);
  - **Support for the disengagement of the state from input supplies** in order to encourage private sector development while installing safeguards against exclusive or unsustainable practices. These safeguards would include quality control of inputs and assessment of their environmental impacts; action against price monopolies and dependency relationships reducing negotiation power;
  - **Improve access to quality inputs** – seeds, fertilizers, phytosanitary products. SME or national/international input providers would be the most appropriate network, through which inputs would reach the various parts of the country – with SMEs probably needing support in the initial phase of their business set-up. Evaluation of local demand would be most efficient if – with organizational support – producers assessed their individual and collective needs for inputs. Extension services would be crucial to disseminate proper application of these inputs;
  - **Encourage development of "pro-poor" services** along the value chain, e.g. machine and equipment sharing, while financial services would need to include the financing of investments for mechanization if certain conditions are met;
  - **Improve access to markets** by supporting the extension and maintenance of decentralized infrastructure (roads; market places; cooling houses; storage facilities) and reliable electricity supplies. Here again, extension services advising and promoting self-organization of producers for easier and more economic marketing is crucial. The same is true for SMEs in processing or conserving of primary agricultural products as they represent po-

tential buyers on the one hand and can open new marketing opportunities for the products on the other hand.

Recommendations for action

- Quality management of input delivery (control, insurance, etc.)
- Farmers service organizations (e.g. legal and organizational development and credit schemes for machine rings)
- Encourage young innovative entrepreneurs (e.g. advice/assistance for start-ups, financial services, marketing)

- **Strengthen research and development** so that they can benefit from international developments and innovations and better evaluate and respond to the needs of farmers. The link to extension services as an intermediary to farmers' needs should be strengthened for problem analysis, dissemination of results, monitoring of adoption and adaptation of results to local needs.
  - Facilitate adapted **innovation by applied research**, research based extension and appropriate technologies (assessments of farmers' needs, participatory technology development (e.g. on demonstration plots) and close follow up with farmers and adjustment of innovations according to results);
  - Support an **improved dissemination strategy** for innovation with a specific focus on poorer, more remote farmers;
  - Encourage and institutionalize exchange between universities and other research **institutions**.

Recommendations for action

- Collaborate closely with INRAB and universities to identify specific needs and strategic directions

- **Support the rolling out of the new land code and land tenure system.** This support should include M&E of the system and adaptations where the safeguards do not work (cf. 3.2.3) and the new system results in exclusion of poor segments of the population from productive land. The monitoring should focus on:
  - the **functioning of safeguards** against land speculation and misuse of agricultural land, the respect of entitlements (property rights, user rights) and access to land for poor small scale farmers, e.g. through the formalization of customary land;
  - the **functioning** of an updated land register (**cadastre**);

- the (participatory) **designation and respect of pastoral corridors** to afford pastoralists scope for movement and ensure the functioning of conflict resolution mechanisms.

Recommendations for action

- Draw on experience gained by KfW in Atacora on challenges and potentials of a land register – and how to ensure its sustainability
- Draw on experience and best practices for pastoral corridors and conflict resolution

Good practice in sustainable intensification and professionalization of the agricultural sector

- **Multilevel approach** with a constant privileged presence within MAEP has been useful for contributions to drafting of strategies and necessary for successful implementation (e.g. in GIZ ProAgri programme);
- The design of one **core programme run over multiple funding periods** for continuity and reliability towards partners and supplemented by other programmes associated with it, e.g. to enhance soil fertility, adaptation to climate change, agricultural finance etc.;
- **Value chain approach** according to regions and along proven instruments such as value links: within the cashew value chain, positive effects on quality, employment and income;
- **Links to NRM** through innovation and specific consultation within the value chain to increase resource efficiency and protect or enhance soil properties, e.g. management of post-harvest residues.

Issues: Setting up an education/apprenticeship system oriented along the needs of the agri-food labour market (production and related services e.g. land machine mechanic, pruning etc.); setting up decentral but harmonized water management measures; scaling up positive approaches.

5.3 Support for financial services

Decentralized financial services adapted to the needs of rural producers are generally recognized as being of the utmost importance to capacitate farmers to invest in intensification, diversification, or optimization of production. Agricultural credit is necessary to purchase quality seeds, to acquire livestock, to invest in drip irrigation, to contribute to shared machines in a machine ring. They are deemed critical to rural transformation as their availability facilitates access to improved means of production and ventures into more diverse economic activities. They are, however, dependent on governance (financial policies etc.), on control mechanisms, and their effect depends partly on the capacities of the creditors to invest properly and to gain benefits from the investment. The latter is at least partly linked to the level of education, professional training and experience, as well as on the quality of advice and support provided to the farmers.

Microcredits have been hailed as a "golden bullet" to help the poor out of poverty. Since 1999, a number of cases highlighted in such diverse countries such as India, Bolivia, Bosnia or Morocco resulting in the most tragic cases in suicide, have drawn attention to the contradictions of profit oriented banking and poverty reduction: the quest for customers has tempted some MFIs to either accept credit demands without checking business plans and solvency, or to pursue more profitable pathways involving larger credit sums and higher profit margins (Engel et al., 2014: 5-9). This discussion went hand in hand with a general critical evaluation of the (limited) impacts of microcredits on economic and social empowerment of the poorest of the poor (Beckmann, Neubert, & Fleig, 2015, pp. 37–40).

Over indebtedness or a continued **financial exclusion** of the most marginal is all too often the consequence of financial services not fully adapted to the needs of the poor. In addition – often in result of strict calculations and risk reduction – many MFIs provide much smaller loans than were requested or tie these to group schemes that promote peer pressure and group liability. Smaller sums do not permit the planned investments and thus often do not have the impacts that were expected. Group credits are often tied to a variety of obligations that reduce their effectiveness. As a result, these types of **credits often have little or no impact** (Engel et al., 2012: 68).

Households in agriculture are usually even less eligible to credit, because their activities are considered risky and reimbursement schedules are long. Given the high interest rates due to high transaction costs of small sums in dispersed locations, lengthy loan cycles are disadvantageous to the poor and not very interesting to the MFI. **Agricultural credits** in production systems that only start to be professional and market oriented thus pose specific challenges.

Benin has a few agricultural credit schemes and institutions that seem to serve the rural producers. An in-depth analysis of the financial sector was not part of the remit. However, some issues were raised by respondents, highlighting the need for more credit schemes, for adapted credits, or for a better funding and distribution mechanisms (cf. 3.1.1).

The table below gives an overview of recommended interventions; the following paragraphs give more insights.

Table 8: Overview of intervention areas for support to financial services

Area of Intervention	Focus	Local entry points	Links with other areas of intervention
Microfinance institutions	▪ Support the development, introduction, and/or further dissemination of specific products ▪ Institutional support for existing SFDs	*National strategies* *Potential local partners* ▪ FECECAM ▪ CLCAM ▪ PADME ▪ MFIs/SFD	▪ Extension services ▪ Capacity development
Government institutions	▪ Support robust control mechanisms to ensure ethical, pro-poor banking (credit bureau) ▪ Institutional support to state-run funds for more transparency and performance	*National strategies* *Potential local partners* ▪ Central Bank/ BCEAO ▪ FADeC ▪ FNDA ▪ ANCB	▪ Governance/policy dialogue ▪ Cooperation with PTF

Source: own elaboration

Proposed recommendations/interventions

The interventions/measures introduced with bullet points represent strategic orientations, while those highlighted with arrows and set in a grey textbox at the end of most sections are recommendations for action, often pointing at potential partners.

- Further **support for adapted, decentralised financial services** for agricultural producers and small and medium entrepreneurs. This support shall ensure a robust financial sector (risk evaluation, safeguards against over-indebtedness) and help to facilitate access to credits.
    - **Support the development, introduction and/or further dissemination of specific products** adapted to the needs of small scale farmers and start-up entrepreneurs. These products need to reach out into the provinces by SFD and/or state-funded financial institutions. Products would include: a) agricultural credits adapted to the production cycle – extension services should support producers in drafting their business plans and could make the link to SFD; b) credits for new entrepreneurs with viable business proposals – private sector development measures for SMEs would help new entrepreneurs to develop and evaluate their ideas;
    - **Institutional support to existing SFDs** (selected) to increase their outreach, portfolio and quality control capacities.

Recommendations for action

- ➢ Institutional support to FESECAM and CLCAM as existing and functioning local agricultural credit institutions to increase their outreach/portfolio
- ➢ Support to dialogues between SFDs for better portfolio management and quality control (ethical guidelines) as well as repartition of the market (regional, target groups)

- **Support state institutions for stronger control** and better roll-out of government funded credit-initiatives.
    - **Support a robust control mechanism** to ensure that SFDs adhere to quality and ethical standards of a pro-poor banking sector (e.g. credit agency to create a debt register, code of conduct for financial institutions);
    - **Institutional support to state-run funds** for microcredits or decentralized investment.

Recommendations for action

- Institutional support to a functioning, transparent and adaptable FNDA in order to benefit from existing dynamics and to make the fund operational
- Institutional support and M&E support for FADeC to ensure the long-term viability of the fund

Good practice in decentral financial systems

- Risk reduction through installation of **guarantee funds** by government or PTF for certain agriculture-related enterprises to help SFDs establish credit lines for these enterprises, e.g. grasscutter breeding;
- **Associated** (intensive, several-months) **consultation** to credit scheme in a trilateral set-up between farmer/entrepreneur, consultant/agronomist and SFD. The consultant can be of government structures such as CARDER or paid for by the association of producers, e.g. in pineapple.

Issue: Avoiding mistakes of the past when it was not considered necessary to reimburse credits derived from public funds; providing investment credits with longer loan cycles than the current short term credits.

5.4 Accompanying measures

Interventions in rural areas alone will not suffice for a more inclusive and sustainable rural transformation. Measures addressing economic development in urban and rural areas (non-farm employment), and the planning for demographic growth including the provision of social services (education, health) are crucial if the expected population growth is to be catered for.

5.4.1 Non-farm employment

As for financial services, an in-depth analysis of non-farm employment opportunities was outside the remit of this study. Furthermore, it was not identified as a main driver of rural transformation by the workshop participants and was thus not a priority issue of the research. However, some basic recommendations are given below.

We see a need for a systematic analysis of employment and labour markets. The integrated framework promoted by GIZ and BMZ (Employment and Labour Market Analysis) provides a toolkit for a relatively rapid analysis (approx. 3 months) exploring a) the potential for employment; b) obstacles for increasing demand for labour; c) obstacles for offering adequately qualified personnel; d) labour market institutions, regulations and policies; e) a conclusion of the major challenges to employment creation (Mummert, 2015, p. 8).

Potentially, the green innovation centre of the SeWOH could request such an analysis to support existing employment and SME schemes. One such SME-support scheme is implemented by CePED and supported by GIZ. Its approach is to support the most promising entrepreneurs across the country as role models for similar business initiatives.

- Support to the development of non-farm employment by **supporting a capacity building/ apprenticeship system** within or complementary to existing formal education and adapted to the needs of the labour market;
- Identify and **promote promising non-farm activities** in cooperation with the ministries for agriculture, economy and labour and including the ministry for education. Generally speaking, there is potential within the processing sector for farm products (especially for women) as well as accompanying services.
- Support **economic policies and framework conditions conducive to SME** development
    - Policy dialogue for trade and economic policies promoting national markets;
    - Support in further improvement of business environment.

Recommendations for action

➢ Contribute to the formulation of workers' minimal rights to secure the status of employees and self-employed, sub-contracted service personnel (e.g. Zemidjan drivers)

Good practice in support of (non-farm) employment[36]

- **Impartial selection** of supported young entrepreneurs through a rigid tiered selection process based on a set of criteria and personal interviews;
- **Apprenticeship** in a secluded setting for intensive, full-time training on-the-job for the transfer of hands-on capacities and good practices with a business plan at the end;
- **Follow-up support** including a (small) **financial loan** for setting up the business, support to a formal credit application with a SFD and technical advice and monitoring.

Issues: How to scale up the scheme – apprenticeship-centres have limited capacities for hosting young entrepreneurs, while capacities for technical advice are limited; how to ensure that

36 Based on experience of the PPEA (*Projet de Promotion de l'Entrepreunariat Agricole*) implemented by CePED under UNDP leadership

the selection is done in a non-politicised way according to selection criteria based on the quality of applications.

5.4.2 Support for land use planning

- Support for urban planning and service provision with a special focus on emerging secondary towns
  - Support **projection of demographic development**;
  - Support **capacity development** of urban planners and facilitate appropriate **processes of urban planning** to ensure inclusive, transparent and (as far as possible) participatory processes;
  - Include the increasing need for **basic social services** (education and health facilities), the growing demand for **energy provision** (electricity, fuel), and the increased demand for services such as **safe water, and waste management** in urban planning.
- Support **urban farming**
  - Assess **potential of and need for urban farming** activities to contribute to food security in fast growing (peri)urban centres;
  - Preview **land reserves** for urban farming in the land use plans;
  - Cooperate with CARDER and INRAB to assess **potentials for promotion of adapted urban farming** methods.

5.4.3 Support for better governance

- Further promote better governance on all levels to ensure that relevant policies (agricultural policy, urbanization policy, economic policy, etc.) are more adapted to the needs of the (growing) population and that the policies are implemented
  - Continue accompanying **policy dialogues**;
  - Support to **capacity development of local administrations** to ensure they are able to perform their tasks in an accountable and participatory manner;
  - Further **support the decentralization process** by accompanying the self-organization of municipalities (ANCB) and lobbying for financial decentralization;
  - **Support local grass-root organizations** and local lobby groups to empower the local population to demand their rights;
  - Support systematic **impact monitoring** in the activities undertaken under the leadership of the government of Benin to increase accountability and transparency.

Recommendations for action

- Cooperate with other international organizations/financing institutions to lobby for good governance based on accountability, transparency, and participation
- Cooperate with ANCB to identify needs and bottlenecks for local administration

Better practice for better governance[37]

- Use influence during **bilateral negotiations** to insist on more adherences to goals and procedures set by the Government of Benin;
- Encourage better **knowledge management and continuity** within administration to ensure a less politicised, more coherent public service;
- Support **capacity development** for public servants in order to strengthen the professional ethics within public administration;
- Support a **systematic impact monitoring** of all activities with involvement of government and/or public funds and adequate remedial action if impacts are below those expected;
- **Critically review** approaches of German cooperation and draw consequences if relevant aspects are not implemented or lag behind expected results because of governance failures.

Issues: How to make sure that administration is not changed after each election or according to political priorities – how to separate administration from politics.

37 Based on discussions during the presentation of results (WS-R1, WS-R2)

6 Concluding remark

The recommendations above address topics that are also part of "usual" rural development interventions. The objective is to influence development dynamics so that they direct ongoing change processes in rural areas in a more sustainable and inclusive manner. The recommendations summarize the essence of analysis and contributions of all parties involved in the research. Their implementation will require further detailed analysis by the concerned agencies to adapt them to the specific local contexts in the various regions of Benin.

Rural transformation is by definition a long-term process, and the described trends are slow and gradual. The same holds true for the expected effects of the interventions. Positive short-term effects of the interventions (e.g. increased soil fertility and in consequence increased yield per hectare; or increased income due to processing and better valorising of products) will need to be sustained so that they can develop the longevity and scale to influence societal processes in a decisive way. The effects of the proposed recommendations will need to be closely monitored by the implementing agencies, and ideally also by the national government, in order to adapt and improve them to increase their impact and outreach.

Transformation processes are ongoing, whether they are purposefully directed or not. In rural Benin today, even if the processes do not point towards radical changes in the rural economy, the ongoing processes have until now had mostly negative impacts on the livelihoods of the rural population. This research offers entry points to exert influence on the trajectory of change processes in Benin to contribute to a more sustainable and inclusive near future.

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8 Annex

8.1 Operationalisation of inclusion and exclusion

Indicators of exclusion	Dimension	Indicators of inclusion
▪ unemployment risk increases, accessible jobs and income sources become more precarious ▪ access to public services (agricultural and business advice) deteriorates ▪ access to markets deteriorates (input, sales markets, labour markets)	Economic	▪ Livelihood of household/person is secure or improves ▪ Access to natural resources, public or market goods and services is secure or improves
▪ legal situation is disadvantageous ▪ formal rights have no validity ▪ exercise of formal rights is hampered or prevented ▪ political participation and interest representation is more difficult	Political/ institutional	▪ legal situation provides security, protection and permits social participation ▪ rights are acknowledged and enforced, and can be exercised ▪ opportunities for political participation and interest representation are in place or improve
▪ increase in negative attributes associated with cultural identity (sense of inferiority and shame / prejudice, racism) ▪ establishing and maintaining relationships is made more difficult ▪ access to and use of education and health services deteriorates or their quality declines	Socio-cultural	▪ recognition of specific cultural, ethnic or religious identities ▪ cultivation and upholding of relations of cooperation and trust in networks and organizations is possible ▪ education and health services are accessible/usable and of adequate quality
▪ physical infrastructure for social participation is lacking or deteriorates ▪ health dangers increase (associated, for example, with the environment, food, accommodation, work) and hamper social participation	Physical/ environmental	▪ infrastructure (e.g., transport, communication, food, water supply and disposal, living environment, work) allow for adequate social participation or improve ▪ living and working conditions promote health or improve
Source: own elaboration, adapted from Shookner (2002)		

Criteria for an environmentally sustainable resource use system		
Indicator of sustainable resource use	**Resource**	**Indicator of non-sustainable resource use**
▪ Sustainable forestry policy in place ▪ No deforestation without adequate reforestation (incl. REDD+ projects) ▪ River beds poor in sediments (no cultivation of river banks), no large erosion clefts/gullies ▪ No burning of fields for cultivation/ hunting ▪ wide practice of agroforestry or silvo-pastoral methods ▪ Interfarm activities to contain desertification or degradation of commons	Forest	▪ No explicit forestry policy ▪ Deforestation without replanting, forest /tree stock disappearance ▪ Reforestation with one-sided, water-consuming tree species ▪ Increase in river course sediments, brown river courses (river bank cultivation) ▪ No large erosion clefts or gullies ▪ Regular burning of fields ▪ No trees on agricultural areas
▪ Water policy guided by water resource management ▪ Mostly rain-fed crop policy and water-saving, supplementing, efficient irrigation procedure ▪ Rivers reach the river mouth ▪ Preservation of aquatic ecosystems (wetlands, lakes) ▪ Extraction and control of safe yield ▪ Policy of 90-day reservoir, water extraction licences ▪ Water user associations in place and functioning ▪ Re-use and purification of waste water for irrigation	Water	▪ Water policy/water resource management geared to supply increase not in place ▪ Agricultural policy primarily irrigation oriented ▪ High use rate of disposable water resources, drying rivers/ diminishing lake water levels ▪ Unlimited ground water usage/ lowering levels ▪ No water user groups for resources ▪ Inefficient and wasteful irrigation ▪ Disputes between people in higher-lying and lower-lying areas, and other users ▪ No waste water purification, no re-use, uncontrolled water contamination
▪ Sustainable soil policy in place ▪ Sustainable soil management in agriculture: wide crop rotation, vegetation coverage, minimal soil cultivation, fallow land, no progressive degradation, perennial, diversified crop varieties ▪ Little or no soil erosion (wind, water) ▪ Revalorization of degraded areas, e.g., Zai ▪ Planting of bushes, trees etc. as field demarcation, small-scale structures	Soil	▪ No specific soil policy ▪ Mineral (excessive) fertilizer only ▪ No replacement of soil nutrients whatsoever ▪ Visible soil degradation, lateralization ▪ close crop rotation or monocultures ▪ No fallow land, no vegetation coverage prior to planting and after harvest, annual crop varieties, deep ploughing, weeds ▪ Strong soil erosion (wind, water) ▪ No bushes, trees, large-scale structures ▪ Dominance of annual crop varieties

▪ Legal consideration of pastoralist life-styles ▪ In pastoral systems: self-sustained pastures ▪ Wide range of pasture grass species, preserved grass swards ▪ Loose tree stocks on grazing lands ▪ Improved grazing systems ▪ Rare disputes/functioning interest balance (benefit-sharing) between pastoralists and agricultural farmers	Pasture	▪ Political discrimination of pastoralists ▪ Degraded, overgrazed pastures ▪ Grazed areas, vegetation free areas ▪ Mostly one-sided grass species ▪ Invasive plant species indicating over-grazing ▪ No improvement in grazing systems ▪ High livestock density ▪ Disputes between pastoralists and agricultural farmers
▪ Nature preservation laws aimed at co-resource management ▪ Visible evidence of these policies ▪ No reduction of wild animal or bird species ▪ No reduction of indigenous tree species ▪ No large conversion of ecologically valuable areas into agricultural land (e.g., no drainage), participation procedures and environmental impact assessments for large-scale conversion projects ▪ Little/sparing use of chemicals in agriculture (integrated crop management) ▪ Priority use of local farm inputs and organic fertilizer, leguminous plants ▪ Sustainable intensification of agriculture	Biodiversity	▪ Separate areas aimed exclusively at protection or use ▪ Rapid conversion of ecologically valuable ecosystems into agricultural areas for cultivation ▪ Reduction of wild animal and bird species ▪ Reduction of indigenous tree species, shrubs ▪ Reduction of cultivars and breeds ▪ Reduction of farm animal species ▪ Spread of invasive plant species ▪ Uncontrolled use of chemicals, no organic fertilizer ▪ Conventional agricultural intensification (high external input)
Source: own elaboration		

8.2 List of scenario building workshop participants

Name	**Institution**
Codjo Clément GNIMADI	CBRST Centre Béninois de la Recherche Scientifique et Technique
AGBANRIN Ephrem	CCIB Chambre de commerce industrie du Bénin
SOSSOU Koffi Benoit	CEFORP/ UAC Centre de Formation et de Recherche en matière de Population
AGBOKOUNOU Aristide	Centre Béninois de la Recherche Scientifique et Technique CBRST/MESRS
Roger TOHOUNDJO	CePED
Moubarrack Touré EL-HADJ GADO	Chambre Nationale d'agriculture Benin

Gildas Junior BOKO	CIFRED/UAC Centre Inter-Facultaire de Formation et de Recherche en Environnement pour le Développement durable
Antoine-Yves TOHOZIN	CIFRED/UAC Centre Inter-Facultaire de Formation et de Recherche en Environnement pour le Développement durable
AZAMDEGBEY Josué	CNP Benin Conseil National du patronat du Benin
Martial KOUDERIN	CREDI-ONG
KARIKA Prisca	DASSN Direction des Affaires Sociales et de la Solidarité Nationale
MAROYA Florent	DPFG Direction de la Promotion de la Femme et du Genre
Hermione BOKO-KOUDERIN	ECO Bénin
Anselme Adéniyi ADEBGIDI	FSA/UAC Faculté des sciences agronomiques
GUEZODSE Lionel	FUPRO Fedération des Unions des Producteurs du Benin
Jean - Baptiste ADIMOU	GERME Groupe d'appui, d'Encadrement et de Recherche en Milieu rural
Marius DEGLA	IDID ONG Initiatives pour un développement Intégré Durable
Patrice ADEGBOLA	INRAB Institut National de Recherches Agricoles du Benin
ESSOUN Christophe A	INSAE Institut National de la statistique et d'analyse économique du Bénin
Médard TOGBENOU	MAEP Ministre de l'Agriculture, de l'Elevage et de la Pêche
M.Thierry TONOU	MDGLAAT Ministère de la Décentralisation
Sylvain AKINDELE	DGFRN Direction Générale des Forêts et des Ressources Naturelles
DJODJO KOUTON Sagbo Damien	PASCIB Plateforme des Acteurs de la Société Civile du Benin
ZOGO André	PNE Partenariat National de l'Eau du Bénin
Athanase AKPOE	PNOPPA Plateforme nationale des organisations paysannes et de producteurs agricoles
DADO DOKO Issifoy	SONAPRA Société nationale pour la promotion agricole
BIAO Eliézer	WASCAL West African Science Service Center on Climate Change and Adapted Land Use

Source: own elaboration

8.3 Scenario Building Workshop Agenda

Atelier intitulé : Élaborer des scenarios pour la transformation rurale au Bénin		
Participants	Représentant du gouvernement du Bénin (différents ministères), d'institutions de recherches, du secteur privé ainsi que de la société civile (ONG et associations travaillant au Bénin)	
Durée	Lundi 25 janvier – Vendredi 29 janvier 2016; 8:30 – 18:00	
Modération	Erik Engel, SLE/ Humboldt-Universität zu Berlin Anja Kühn et Gabi Beckmann, SLE/ Humboldt-Universität zu Berlin	
Objectifs	Les participants ont élaborés différents scénarios pour la transformation rurale au Bénin en vue de l'horizon 2030. Basés sur l'analyse des scénarios, ils ont développés des recommandations stratégiques pour contribuer à une transformation socialement plus inclusive et écologiquement durable	
Séances	Enregistrement jour 1 8:30 – 9:00 Séance matinale I 8:30 – 10:30 Séance matinale II 10:45 – 12:30	Séance après-midi I 13:30 – 15:30 Séance après-midi II 15:45 – 18:00

1ère partie	
Jour 1 – Lundi 25 janvier	**8:30 – 18:00**
▪ Enregistrement ▪ Ouverture ▪ Introduction de la recherche : aperçu méthodologie et étapes de l'atelier, présentation des participants et du sujet ▪ Transformation rurale au Bénin – tendances récentes et direction des changements ▪ Identification et définition des facteurs déterminant la transformation rurale au Bénin	
Jour 2 – Mardi 26 janvier	**8:30 – 18:00**
▪ Pondération et tri des facteurs déterminant la transformation rurale au Bénin ▪ Description des variations des facteurs déterminant la transformation rurale au Bénin ▪ Élaboration d'un scénario « continuation comme si de rien n'était », d'un scénario plutôt optimiste (durable et inclusif) et revue des résultats	
2ème partie	
Jour 3 – Mercredi 27 janvier	**8:30 – 18:00**
▪ Analyse des influences mutuelles des facteurs déterminant la transformation rurale ▪ Analyse de l'influence relative des facteurs déterminant la transformation rurale	
Jour 4 – Jeudi 28 janvier	**8:30 – 18:00**
▪ Analyse de l'influence relative des facteurs déterminant la transformation rurale ▪ Revue du système des facteurs déterminant la transformation rurale au Bénin ▪ Élaboration de scénarios pour une transformation plus durable et inclusive	
Jour 5 – Vendredi 29 janvier	**8:30 – 17:00**
▪ Élaboration de scénarios et de recommandations pour une transformation plus durable et inclusive ▪ Revue des scénarios, pertinence des recommandations et aperçu des étapes suivantes	

8.4 List of interview partners

Code	Region	Institution
Int1	Parakou	University
Int2	N'dali	Town hall
Int3	N'dali	RDR
Int4	Parakou	RDR
Int5	Parakou	Tax department
Int6	N'dali	Artisan (jewellery)
Int7	N'dali	Communal forestry department
Int8	N'dali	Artisan (cooking stoves)
Int9	N'dali	Artisan(weaving)
Int10	N'dali	Agricultural processing (Soy-cheese)
Int11	N'dali	producers union
Int12	Parakou	DDPD
Int13	Parakou	Town hall
Int14	Parakou	RDR : technical staff (nutrition, transformation, vegetable production, statistics, cooperative education
Int15	Parakou	Departmental Public Health department
Int16	N'dali	Directors of primary and secondary schools
Int17	N'dali	SIANSON Microfinance
Int18	N'dali	Educational NGO (FEE-D, Equid'ec)
Int19	Parakou	Departmental water direction
Int20	Parakou	Departmental forester
Int21	Parakou	INRAB
Int22	Parakou	Ministry of environment, habitat and urbanism (MEHU)
Int23	Parakou	RADDeR, DEDRAS, SIANSON Microfinance
Int24	Parakou	Focus Group Discussion with 19 representatives of diverse farmers organisations
Int25	Parakou	Town Hall
Int26	N'dali	Communal health centre
Int27	N'dali	Town Hall
Int28	N'dali	Ginning factory
Int29	Parakou	Schooling department
Int30	Parakou	Helvetas
Int31	Parakou	LASDEL
Int32	Parakou	Town hall
Int33	Pobé	Town hall
Int34	Porto Novo	Departmental direction for urbanization and habitat
Int35	Dangbo	Town hall
Int36	Dangbo	Communal producers union
Int37	Dangbo	ESOP, ricefactory
Int38	Porto Novo	Agricultural counsel
Int39	Dangbo	Environmental police

Code	Region	Institution
Int40	Pobé	CLCAM Pobé
Int41	Pobé	Schooling agency
Int42	Pobé	MFI NGO GABF
Int43	Pobé	PADME
Int44	Pobé	RDR
Int45	Pobé	Health and sanitation zone Pobé
Int46	Dangbo	Town hall
Int47	Dangbo	Town hall Dangbo
Int48	Dangbo	RDR
Int49	Dangbo	Female groups Union
Int50	Dangbo	CARDER Ouémé Plateau
Int51	Pobé	Foresters
Int52	Pobé	INRAB
INt53	Pobé	Town Hall
Int54	Pobé	Communal producers union
Int55	Dangbo	Health centre
Int56	Dangbo	Schooling department
Int57	Dangbo	Artisan
Int58	Pobé	Artisan : palm oilproducer
Int59	Pobé	Artisan and saleswomen palm oil
Int60	Pobé	Womens union for transformation
Int61	Porto Novo	CAB Ouémé Plateau
Int62	Talcon	Foresters
Int63	Porto Novo	Expert inland fisheries
Int64	Porto Novo	INRAB Porto Novo
Int65	Porto Novo	DDPD Ouémé plateau
Int66	Cotonou	PNOPPA/pineapple union
Int67	Cotonou	Belgian cooperation
Int68	Cotonou	SONAPRA
FInt69	Cotonou	GIZ ProAGRI + ProSEHA
INt70	Cotonou	UNDP – poverty reduction
INt71	Cotonou	EU – agricultural development
Int72	Cotonou	GIZ ProCIVA
Int73	Naititingou	KfW/AFC, Agricultural investment funds
Int74	Cotonou	KfW
Int75	Cotonou	GIZ country office
Int76	Cotonou	GIZ – Green Innovation Centres
Int77	Cotonou	GIZ ProSEHA; water ministry
Int78	Cotonou	German Embassy, economic cooperation
Int79	Cotonou	Centre Béninois Recherche Scientifique et Technique (CBRST)
Int80	Cotonou	Belgian cooperation
Int81	Cotonou	UAC - CIPED

Code	Region	Institution
Int82	Cotonou	GIZ RBT Mono
Int83	Cotonou	ECO-Bénin ONG
Int84	Cotonou	CBRST
Int85	Cotonou	INRAB
Int86	Cotonou	CENAGREF
Int87	Cotonou	UAC-WASCAL
Int88	Cotonou	CePED
Int89	Cotonou	MAEP
Int90	Cotonou	CIRAD
Int91	Cotonou	PANA 1
Int92	Cotonou	GIZ – Green Innovation Centres
Int93	Cotonou	Agricultural Chamber, CAB
Int94	Cotonou	CREDI-ONG
Int95	Cotonou	UAC - FSA
Int96	Cotonou	PNE
Int97	Cotonou	IDID-ONG
Int98	Cotonou	PNOPPA
Int99	Cotonou	Ministry of Environment
Int100	Cotonou	GERME-ONG
Int101	Cotonou	Decentralisation ministry
Int102	Cotonou	GIZ-Decentralisation
Int103	Cotonou	FUPRO
Int104	Cotonou	LARES
Int105	Cotonou	CePED
Int106	Cotonou	GIZ, Réserve biosphère transfrontalière
Int107	Cotonou	GIZ, ProAgri
Int108	Cotonou	GIZ, ProFinA
Int109	Cotonou	PADME

References to the Scenario Building Workshop: see Berg et al. (2016) and Workshop Proceedings Benin (available via SLE)

WS-A	Introduction
WS-B	Directions of change
WS-C	Driving forces
WS-D	Weighing and sorting of factors
WS-E	Factor variations and linear scenarios
WS-G	Influence matrix
WS-I	Interdependency matrix + walk in the system
WS-J	Changing factors
WS-L	Final discussion
WS-R1	Restitution of results – participants
WS-R2	Restitution of results – technical and financial partners and ministries

8.5 Sample Interview Guide

Guide Entretiens « Facteur Gestion des Ressources Naturelles »

Hypothèse : Les ressources naturelles sont dégradées par des monocultures (surtout l'utilisation forte de pesticides sur la production de coton) et la manque d'espaces (agriculture sur brûlis). Les terres sont souvent surexploitées par manque d'intrants. La croissance démographique continue à exercer une forte pression sur toutes les ressources. Début de prise de conscience (plus individuelle et pas gouvernementale), les lois existantes ne sont pas appliquées.

1) Comment est-ce que les ressources naturelles se présentent dans la région ?

États de lieux des ressources naturelles/ Question ouverte

- Quel est l'état des lieux des sols/ pâturages/ forêts/ eaux/ biodiversité ? Y a-t-il une forte dégradation des ressources naturelles : déforestation, pollution de l'eau, surpâturage/ dégradation de sols/ perte de la biodiversité
- Pourquoi les ressources naturelles sont-elles dégradées ?
- Est-ce qu'il y a (avait) de grands changements (dans le passé) ? Pour quelles raisons ?

Vulgarisation/ Conscience/ Lois et textes

- Y a-t-il des mesures pour la sensibilisation pour le changement de comportement de la gestion durable ? La population adopte-elle les pratiques durables ?
- Y a-t-il des analyses d'impacts environnementaux ?
- Les politiques nationales affectent-elles l'utilisation/ la gestion des ressources naturelles ? Ces textes sont-ils vulgarisés ? L'application de cette politique est-elle contrôlée ? Les progrès sont-ils surveillés/ enregistrés ?
- Existent-ils des groupes consultatifs de liaison entre les différents secteurs ?
- Y a-t-il des mesures de gestion participative ?

Dérèglement climatique

- Est-ce que vous avez observé des changements climatiques dans la région ? Quels sont-ils ?
- Y a-t-il des sécheresses ou des inondations ? Est-ce que le rythme des saisons des pluies est normal/ habituel/ affecté ?
- Y a-t-il des mesures d'adaptation mises en place ? Dans ce cas, ces mesures sont-elles gouvernementales/ non-gouvernementales/ privées ? Ces mesures sont-elles des mesures sans regret (les mesures favorables dans tous les cas de figure, soit un climat plus ou moins chaud) ? Augmentent-ils la résilience ?

2) Quels sont les effets du facteur XY sur la transformation rurale (sur les directions de changement des aspects généraux de l'atelier (étape B) ?

Comment le facteur affecte-t-il la **migration ?**

- Y a-t-il une migration vers les régions plus favorables à l'agriculture/ aux autres services d'écosystèmes ?
- La migration conduit-elle à des pratiques écologiques non durables dans la région concernée (région de destination) ?
- Y a-t-il des conflits pour des ressources naturelles entre les agriculteurs et les éleveurs ? Les immigrants, respectent-ils les règles existantes ?
- Est-ce qu'il y a (avait) de grands changements (dans le passé) ? Pour quelles raisons ?

Comment le facteur affecte-t-il les **sources de revenus ?**

- Quelles sont les couches sociales qui produisent le charbon ? Y a-t-il des gens qui passent de l'agriculture à la production de charbon parce que c'est plus rémunérateur que l'agriculture ?
- Quelle est l'importance de l'écotourisme ?
- Quels produits forestiers non ligneux sont-ils exploités ?
- Y a-t-il un marché de foyers avancés ? Dans ce cas, crée-t-il de nouvelles occasions d'emploi ?
- Est-ce qu'il y a (avait) de grands changements (dans le passé) ? Pour quelles raisons ?

Comment le facteur XY affecte-t-il les **formes d'agriculture ?**

- Quels sont les potentiels et les blocages naturels locaux à l'expansion des terres cultivables et à l'intensification de la production ? La dégradation des ressources naturelles empêche-t-elle l'intensification ou l'expansion ?
- Y a-t-il des mesures pour adapter l'agriculture aux dérèglements climatique ?
- Influencent-elles la résilience des différents groupes sociaux et systèmes de subsistance ?
- Est-ce qu'il y a (avait) de grands changements (dans le passé) ? Pour quelles raisons ?

Comment le facteur XY affecte-t-il les caractéristiques des familles et de foyers ?

- La gestion des ressources naturelles offre-t-elle de nouvelles possibilités d'embauche/ accès à l'emploi pour les femmes ?
- Est-ce que ça a une influence sur les caractéristiques des foyers ?
- Les fourneaux à bon rendement énergétique transforment-ils la vie des femmes ?

3) Scénario 2030 :

Imaginez-vous en 2030. Comment est-ce que le facteur XY dans votre région se présente actuellement (projection **réaliste**) ? Est-ce que le scénario/ l'application/ le facteur est inclusif socialement et durable écologiquement ? (fermez les yeux et racontez-nous ce que vous voyez)